



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

Urban park a new typology of built-up nature: towards a new urban green language for Barcelona

Tahmineh Naeimi

ADVERTIMENT La consulta d'aquesta tesi queda condicionada a l'acceptació de les següents condicions d'ús: La difusió d'aquesta tesi per mitjà del repositori institucional UPCommons (<http://upcommons.upc.edu/tesis>) i el repositori cooperatiu TDX (<http://www.tdx.cat/>) ha estat autoritzada pels titulars dels drets de propietat intel·lectual **únicament per a usos privats** emmarcats en activitats d'investigació i docència. No s'autoritza la seva reproducció amb finalitats de lucre ni la seva difusió i posada a disposició des d'un lloc aliè al servei UPCommons o TDX. No s'autoritza la presentació del seu contingut en una finestra o marc aliè a UPCommons (*framing*). Aquesta reserva de drets afecta tant al resum de presentació de la tesi com als seus continguts. En la utilització o cita de parts de la tesi és obligat indicar el nom de la persona autora.

ADVERTENCIA La consulta de esta tesis queda condicionada a la aceptación de las siguientes condiciones de uso: La difusión de esta tesis por medio del repositorio institucional UPCommons (<http://upcommons.upc.edu/tesis>) y el repositorio cooperativo TDR (<http://www.tdx.cat/?locale-attribute=es>) ha sido autorizada por los titulares de los derechos de propiedad intelectual **únicamente para usos privados enmarcados** en actividades de investigación y docencia. No se autoriza su reproducción con finalidades de lucro ni su difusión y puesta a disposición desde un sitio ajeno al servicio UPCommons No se autoriza la presentación de su contenido en una ventana o marco ajeno a UPCommons (*framing*). Esta reserva de derechos afecta tanto al resumen de presentación de la tesis como a sus contenidos. En la utilización o cita de partes de la tesis es obligado indicar el nombre de la persona autora.

WARNING On having consulted this thesis you're accepting the following use conditions: Spreading this thesis by the institutional repository UPCommons (<http://upcommons.upc.edu/tesis>) and the cooperative repository TDX (<http://www.tdx.cat/?locale-attribute=en>) has been authorized by the titular of the intellectual property rights **only for private uses** placed in investigation and teaching activities. Reproduction with lucrative aims is not authorized neither its spreading nor availability from a site foreign to the UPCommons service. Introducing its content in a window or frame foreign to the UPCommons service is not authorized (*framing*). These rights affect to the presentation summary of the thesis as well as to its contents. In the using or citation of parts of the thesis it's obliged to indicate the name of the author.

URBAN PARK A NEW TYPOLOGY OF BUILT-UP NATURE

TOWARDS A NEW URBAN GREEN LANGUAGE FOR BARCELONA

TAHMINAH NAEIMI

بہ نام یزدان پاک

IN THE NAME OF GOD THE MOST GRACIOUS THE MOST MERCIFUL

URBAN PARK A NEW TYPOLOGY OF BUILT-UP NATURE

TOWARDS A NEW URBAN GREEN LANGUAGE FOR BARCELONA

AUTHOR: TAHMINEH NAEIMI

DIRECTORS

DR. AQUILES GONZÁLEZ RAVENTÓS

DR. XAVI LLOBET

CERCLE D'ARCHITECTURA RESEARCH GROUP

DEPARTMENT OF ARCHITECTURAL DESIGN

ESCUELA TÉCNICA SUPERIOR DE ARQUITECTURA DE BARCELONA - ETSAB

UNIVERSITAT POLITÈCNICA DE CATALUNYA - BARCELONA TECH

BARCELONA - NOVEMBER 2020

HEREBY I DEDICATE MY EFFORT TO MY SWEET AND LOVING

MOTHER WHO SUPPORTS ME WITH HER AFFECTION, ENDLESS LOVE, AND ENCOURAGEMENT

GRANDMOTHER WHO TAUGHT ME TO JUST TRUST IN GOD AND BE THANKFUL

AND MY UNCLE FOR BEING MY GUARDIAN DURING ALL MY LIFE

ACKNOWLEDGMENT

Firstly, I would like to express my sincere gratitude to Dr. Aquiles González Raventós for continuous support during my Ph.D. study, for his patience, friendship, motivation, and immense knowledge. His guidance helped me in all the time of research and writing of this thesis that I could not have imagined having a better supervisor for my Ph.D. study.

My sincere thanks also dedicated to Dr. Xavi Llobet for the insightful comments and encouragement, but also for the punctilious question which incited me to widen my research from various perspectives during the research and writing of this thesis.

I would like to thank Central Park Conservancy, National Library of United States, National Park Service, National Association for Olmsted Parks who supported me by sending precious documents during the research which supported the development of the work.

I would like to deeply appreciate Monica Bonich, the compassionate librarian of ETSAB for her marvelous support in the field of referencing the research.

I am indebted to all the members of my lovely family and especially my auntie who was my first academic teacher, my mother, grandmother, and uncle for their unconditional support, encouragement, and endless love throughout the research and all my life.

At last but not least I would like to express my deep appreciation to a special friend who stayed by my side, supports me emotionally, and encouraged me throughout the most essential moments of writing my thesis and my life in general.

| CONTENTS | PAGE |
|--|------|
| ABSTRACT | 15 |
| INTRODUCTION | 21 |
| 1. FROM PARADISE TO PRIVATE GARDENS | |
| 1.1. Concept of Paradise | 41 |
| 1.2. Persian Gardens | 51 |
| 1.3. Persian Gradens as an International Pattern | 77 |
| 2. URBAN PARKS FOR MODERN METROPOLIS | |
| 2.1. New Prototype for Urban Park in the Metropolis | 83 |
| 2.2. Plan of Cerdá vs Plan of Randel and Urban Park Movement | 97 |
| 2.3. Urban Park a Complex of Art and Design | 134 |
| 3. URBAN PARKS FOR BUILT CITIES: THE BARCELONA URBAN GREEN CORE | |
| 3.1. Kevin Lynch and the Green Pattern in a Built City | 228 |
| 3.2. Contemporary Urban Park in the Metropolis | 242 |
| 3.3. Concept of Glòries Urban Park as a New Prototype | 260 |

| | |
|------------------------|-----|
| CONCLUSIONS | 305 |
| ANEX | 329 |
| BIBLIOGRAPHY | 353 |
| LIST OF PHOTOS | 373 |
| LIST OF DRAWINGS | 381 |
| LIST OF FIGURES | 391 |

ABSTRACT

This thesis aims to generate a new vision for the park division and introduce a new model of parks called Urban Park. Urban Park should follow specific features and unique characteristics that made it suitable to be integrated into any urban fabric. Therefore, a study on the available groups of parks helps the thesis to compare their characteristics and facilities and formulate a complex of design principles for urban Park. It helps the study to go through formulating a flexible architectural model for Urban Park that can respond to the current and future needs of the inhabitant. This thesis is composed of three chapters that generally are studying on three periods in park design as former time, modern time, and the present time.

The first chapter based on bibliographical research leads the thesis to study the concept of paradise and relates it to gardens. Historiography and itinerary review clarifies that the first signs of the park from the current vision date back to 500BC in the Persian Empire that created gardens with the concept of paradise. It clarifies that those gardens were royal and private gardens that were open to the public sporadically in local and national festivals, events, and holidays. The characteristics and elements of the Persian paradises made them a reference for the western world for centuries. Comparing and analyzing Persian gardens helped the thesis to find important and structural elements of these parks that served to illuminate those other characteristics of the contemporary urban park.

The second chapter refers to modern times and begins with the first public park that broke the boundaries of the symmetrical design that had been implemented by the Persian garden model and offers a new attitude to park design. A comparison of the case studies shows the

evolution of public parks to urban parks. Study and comparison of the plan of Randel for Manhattan and the plan of Cerdà for Barcelona clarify fundamental elements of the urban renewal of these two urban fabric. Moreover, analyzing the evolution of greenery in Barcelona and Manhattan, and also different techniques of redrawing Central Park and urban blocks of both cities served as fundamental references to clarify the idea of what an urban park is. Besides, it also helps the thesis to differentiate an Urban Park from a green park and enlighten the characteristics of the contemporary Urban Parks.

The third and final chapter studies the present moment and tries to introduce a green pattern for the built cities. Therefore, it took as reference the two urban models of Kevin Lynch as Star model and Galaxy model. According to the purpose of the thesis and also based on the information obtained from analyzing Kevin Lynch's selected models the thesis introduced the Star-Galaxy model. The new model is containing characteristics that are the basis of the contemporary Urban Park model. Moreover, this chapter clarifies the characteristics of the modern metropolis with its relation to urban nature and select Barcelona as a reference. This chapter opens a new vision of Barcelona city with the maximum expression of the relationship between the urban fabric of metropolises and nature. It explains the characteristics of the new system of urban greenery and introduced the new Urban Park of the Plaça de Les Glòries.

At the end of this tour of the parks from the Persian era to the present day transferring all the data coming out from research methodologies into a theory had been done. It can be purposed that the model being implemented in Barcelona urban fabric can be considered

as a contemporary model for Urban Parks. It opens a vision to the new generation of urban greenery system and can be considered as a reference for further interventions in metropolises.

RESUMEN

Esta tesis aspira a generar una nueva visión dentro de las características de los parques introduciendo un nuevo concepto llamada Parque Urbano. El Parque Urbano tiene unos rasgos característicos y definidos que lo hacen adecuado a estar integrado en cualquier tejido urbano. Por lo que, un estudio de un significativo grupo de parques ha permitido comparar tanto las características de dichos parques como así mismo sus instalaciones y servicios para poder formular unos principios de diseño para un parque urbano. Ayuda al estudio el recorrer la formulación de un modelo flexible para un Parque Urbano que pueda responder a las actuales y futuras necesidades de los habitantes. Esta tesis está compuesta por tres capítulos que principalmente estudia tres periodos en el diseño del parque: el tiempo pasado, el tiempo moderno y el tiempo contemporáneo.

El primer capítulo está basado en una investigación bibliográfica que conduce la tesis a estudiar el concepto de Paraíso y relacionarlos con los jardines. Un itinerario historiográfico clarifica que los primeros indicios de lo que es un parque se remontan al año 500 AC en el Imperio Persa donde se crearon jardines unidos al concepto de paraíso. Se clarifica que esos jardines eran jardines reales y privados que eran abiertos al público solo esporádicamente cuando se realizaban festivales locales o nacionales y en las vacaciones. Las características y elementos de los paraísos persas hicieron de ellos un referente para el mundo occidental durante siglos. Comparando y analizando los jardines persas la tesis encontró importantes y estructurales elementos en estos jardines y parques que sirvieron para iluminar otras características del para urbano contemporáneo.

El segundo capítulo se refiere al periodo moderno y se inicia con el primer parque público que rompió los límites del diseño simétrico que hasta entonces había sido implementado hasta entonces por el modelo del jardín persa y que ofrecía una nueva actitud al diseño de los parques. Una comparación de los casos de estudio muestra la evolución de los parques públicos en parques urbanos. El estudio y la comparación del plan de Randel para Manhattan y plan para Barcelona de Cerdá clarifican los elementos fundamentales para la renovación de estos dos tejidos urbanos. Además, analizando la evolución de la vegetación en Barcelona y Manhattan, y también diversas técnicas de redibujo de Central Park y edificios de ambas ciudades sirvió como referencias fundamentales para clarificar la idea qué es un parque urbano y explicar las características del parque urbano contemporáneo.

El tercer y último capítulo estudia el momento presente y trata de introducir un patrón verde para las ciudades. Por esto se tomaron como referencia los dos modelos de Kevin Lynch como el modelo Star y el modelo Galaxy. De acuerdo al propósito de la tesis y también de la información obtenida del análisis de los modelos seleccionados de Lynch, Star y Galaxy. El nuevo modelo contiene características que son la base del parque urbano contemporáneo. Además, este capítulo clarifica las características de la metrópolis moderna y su relación con la naturaleza urbana seleccionando Barcelona como referencia. Este capítulo abre una nueva visión de la ciudad de Barcelona en la que se encuentra la máxima expresión entre el tejido urbano construido y la naturaleza. Explica las características del nuevo sistema de la vegetación urbana a través del nuevo Parque Urbano de la Plaza de Las Glorias.

Al final de este tour desde la era Persa a los días presentes, transfiriendo toda la información

que va de la investigación de metodologías a las teorías de hoy. El modelo implementado en el tejido urbano de Barcelona puede ser considerado como un modelo contemporáneo de referencia para un parque urbano. Abre una visión de una nueva manera de entender la vegetación urbana que se considerará como una referencia para futuras intervenciones en las ciudades.

INTRODUCTION

Metropolises are well-known because of their great parks and one of the criteria for measuring the city's prominence is their ability to provide natural beauty, recreation, and initial open spaces for their citizens. Over thousands of parks were constructed during the history and millions of words were written about the features and principles of creating a park, but they never finished and remained vital and impressive to the cities and researchers. On the other hand, the design and structure of a park shape the way of social use but on the contrary, the way a community uses a park also reflected in the design and structure of it. For example, by changing the time the recreational demands may also change and it will bring changes in the facilities provided in the park to add, omit, or replaced.

In the context of this thesis, the concept of the urban park has been studied in three different times from the root of the concept of the park which belongs to the history to the modern time and ended in the contemporary time. In other words, it started from the private gardens of the former times and goes forward through the public gardens for new metropolises or mass societies of the modern times and ended with public gardens for the present built cities or metropolises.

In the former times, the thesis goes forward through the history of parks and private gardens and studied them in the small cities and towns of different cultures and civilizations. It supports the research to find the basic elements of the park in the current sense and also the pattern that they were following for centuries with their meaning.

Modern times which is the second period that this research goes on to it belongs to the newly planted metropolises for millions of inhabitants around the world. It discovers the fact of globalization and its effects on urban environments and especially parks. It also supports the thesis to find how green spaces and parks can improve the quality of life of the inhabitants apart from their social classes.

And the last section of studying in this research belongs to the current time or in other words contemporary time. According to the vast movements to the big cities and metropolises in the current era and the lack of empty spaces for parks and greenery in the cities this research takes into account built cities and metropolises which have to be renovated to add urban parks and greenery to their context for their inhabitants.

- **RESEARCH MOTIVATIONS**

The interest in writing this thesis and going forward through this topic comes firstly from the self-interest in the urban greenery. But later this interest gets stronger when the initial studies on the subject and searching keywords resulted in that now there is no exact definition and study about urban parks.

Currently, urban green spaces are divided into eight types inspired by the division of green spaces by Bell, Montarzino, and Travlou in 2007. This division of different types of green space relies on the quantity and quality of services provided and can be characterized as Parks, lakes, nature, churchyards, sports fields, common areas, agricultural fields, and green buffer.¹

Besides due to the current division of green spaces, a park is defined as a green space that has a high maintenance level with preserved vegetation and a wide range of recreational opportunities. Pathways open the green area to the public and make it possible to walk in the area and enjoy different features such as small lakes, trees, lawns, flowers, and sports activities.²

Also, the Seattle Department of Park and Recreation expressed a division for the parks in 2009 which is driven by park use, purpose, and size. This grouping is organized as Triangles/Circles/Squares, Pocket parks, Downtown parks, Neighborhood Park, Community Park,

1 S. Bell, A. Montarzino, P. Travlou. Mapping research priorities for green and public urban space in the UK. Urban Forestry and Urban Greening. UK 2007, Vol. 6, No. 2, P. 103–115.

2 F. Kienast, B. Degenhardt, B. Weilenmann, Y.Wäger, M. Buchecker. GISassisted mapping of landscape suitability for near-by recreation. Landscape and Urban Planning. 2012, Vol. 105, No.4, P. 385–399.

Recreation Area, Natural Area/ Greenbelt, Boulevards/ Green Streets/ Trails, and Special Use.³

Contrarily, Fairfax County tried to put Pocket Parks, Squares, recreation area, and Boulevards under a new group known as an urban park. But the fact is that when you search for urban parks they are defined as green urban areas that are available in the cities apart from their scale, functions, and facilities which are providing and following. The unique definition about urban parks which is available is that “An urban park, also known as a municipal park or a public park, public open space or municipal gardens, is a park in cities and other incorporated places to offer recreation and green space to residents of, and visitors to, the municipality. The design, operation, and maintenance are usually done by the government, typically on the local level, but may occasionally be contracted out to a private sector company”.⁴

Overall, in the current division of parks, there is no exact and well-defined place for an urban park. However, there are some available good case studies of urban parks in the present word but no one can differentiate them from other types of parks because of a lack of exact definition and information about them. Therefore it becomes a strong interest to go deeper on this topic and as a result, the thesis is shaped.

3 T. E. Panduro, K.L.Veie. “Classification and valuation of urban green spaces: A hedonic house price valuation”. Landscape and Urban Planning, Elsevier. 2013. The University of Copenhagen. September 2013, No. 120, P. 119-128.

4 Park Classification System, Your City Seattle: Department Policy and Procedure. Park and Recreation [Online] 2009. [Accessed: November 2014] Available at< http://www.seattle.gov/parks/Publications/policy/parks_classification_policy.pdf>.

UrbanParks in Fairfax County. Fairfax County Park authority [Online]. 2013. [Accessed: November 2014] Available at <<http://www.fairfaxcounty.gov/parks/plandev/urbanparks.html>>.

Dr. M. Van den Bosch. “Health Effects of Urban Parks: Strength of Evidence”. The Swedish University of Agricultural Science. EFUF. 16th European Forum of Urban Forestry. Milano. Italy 2013.

• **AIM AND OBJECTIVES**

The research aim in this thesis is to:

- Generate a new vision for the park division and introduce a new model of parks called Urban Park which is following specific features and has ductility to any urban form.

To reach the aim of the study, the following research objectives specified to make clear how the study will go on.

- Study the available groups of parks and compare their offers and facilities with the current and possible future social demands.
- Study on and introduce the design principles and details which are essential for Urban Park and formalize that an Urban Park is different from Green Park.
- Study on the methods to create an architectural style for the Urban Park which is integrated into the urban fabric and answer to the residents' current and future demands
- Create a flexible model that has the possibility of future reformations and not to be obsolete in their century, but does not lose the identity and basic characteristics and design concept.

- **HYPOTHESIS AND RESEARCH QUESTIONS**

The purposed research will contribute to both theoretical and practical levels to the enhanced understanding of the principles that an Urban Park should follow to be implemented in the current metropolitans and urban areas.

To reach the aim and objectives of the research in this thesis, three different research questions have been defined as follows that should be answered at the end of the research.

- Research Question One: What are the most important and essential principles that an Urban Park should follow?
- Research Question Two: What are the similarities and differences between Urban Parks in different urban texture?
- Research Question Three: How an Urban Park can be implemented in the current built urban areas?

To answer the above research questions I started with a hypothesis that is clear and specific and helps me guess the outcome of my research. Therefore, I assume that if I go through the historical studies about the roots of parks and find the links and/or the breaks with contemporary ones I could arrive at essential principles and characteristics which are the shaping parks. These outcomes can help to define a new model of parks as Urban Park which is the purpose of this research. It can be implemented in different urban textures due to metropolitan and citizen needs.

- **RESEARCH METHODOLOGY**

One of the important, difficult, and confusing steps of any kind of research is about choosing an appropriate research methodology. Choosing a proper research methodology will pin the research into the correct process of data collection and data analysis. Generally, there are two main types of research strategies as quantitative and qualitative strategies. The quantitative research method is defined as systematic research of a matter by collecting quantifiable data and using statistical, mathematical, or computational techniques. On the other hand, the qualitative research method is a way of research that provides information on the human side of the research and seeks an answer to a question by collecting evidence. The qualitative research method will produce findings that are not determined in advance and are applicable beyond the immediate boundaries of the study.⁵

The research methodology for this research is established by adopting a way in which the research objectives can occur. Therefore, qualitative research methodology had been chosen as a proper method and help the research for choosing data collection techniques.

First Stage: The data collection techniques in this research started firstly with literature and bibliographical review which helps to select other proper techniques to get close to the objectives of the research. A literature review in general terms is an evaluative report of studies that should give a theoretical basis for the research and help you determine the nature of

⁵ N.k.Denzin, Y.S.Lincoln. Hand Book of Qualitative Research, Second Edition. London, New Delhi. Sage Publications Inc. International, educational and Professional Publisher.

A.Bhat. "QuestionPro, Quantitative Research: Definitions, methods, types, and examples". [Online]. The USA. [Accessed: April 2019]. Available at < <https://www.questionpro.com/blog/quantitative-research/>>.

your research. It helps to select a limited number of works that are close to your issue rather than trying to collect a large number of works that are not as closely connected to your topic. It helps to provide a context, justify the research, and also ensure that the research has not been done before and proves the novelty.

Second Stage: Bibliographical studies provide the opportunity and lead the research into the Historiography and itinerary review. This technique of data collection was the turning point in this research and had been used widely in the whole research. It helps firstly to find the early example of the park with today's sense. Secondly, the case studies selections are coming up from the heart of the historiographical review of the topic and ensure the integrity of the selected case studies. The itinerary review here was a great source of ensuring that the selection of some case studies and reports of literature studies are truthful.

Third Stage: Selecting appropriate case studies is an important step for the researches which are going on with this technique of data collection. In this research case studies are selected in a wide period from 6th century BC to the present. Historiographical studying on the topic leads the research to choose Pasargadae in Iran as the first case to study. It helps to discover some singular elements about the construction of parks which push the research into discovering other relevant case studies to work on. The selection of case studies is a real mysterious point in this research because they were coming in a row like the stairs of a ladder, and was not possible to arrive at the final steps without passing the previous ones. They were connected and guiding the research for arriving at its objectives.

Fourth Stage: Direct interaction with individuals is a method of collecting data in qualitative

research strategies which is used in this research. Direct contact with the related organizations, companies, and head persons who are in charge, with case studies supports the research with trustful references and provides the opportunities for accessing the documents which are not publicly accessible. On the other hand, direct contact provides the opportunity of receiving membership in some organizations which support the research by receiving and informing about the newest news, changes, events, and decisions which are concerning the case studies.

Fifth Stage: However, the importance of all the above techniques is undeniable for this research, but it still needs a new technique to become completed and lead the research for getting closer to its purpose. Therefore, redrawing, creating the collage, and Nolli maps of the examples appear like truly strong techniques for finding hidden features of case studies. These techniques help to be in the position of the example's designers and find out a part of their concept at the time of their designation.

Sixth Stage: Comparison within the redrawn plans and maps also helps to figure out the modifications that the examples face during their lives inside their borders and also the effects that these modifications applied to the surrounding urban area and environments. On the other hand, the comparative method was not just restricted to one example during its lifetime, it goes further to compare like with like as well. Therefore, different case studies had been compared together and the reliable results of it formulated the conclusion and result of the research. This technique supports the research to discover characteristics, indicators, and all the necessary elements and features for having an urban park. All these features and

indicators help the research to get closer to its goal and being able to introduce an exact definition for Urban Park. Therefore, the essential role of an Urban Park in the urban environment clarified and the identifying elements that have been introduced helps to make a distinction between Urban Park and other groups of green areas in the city.

Final Stage: At the final stage, the idea of Grounded theory has been used for transferring data to theory. This method helps the research arrive at a theory that would be specific to the context and opened up a space to develop new contextualized theories. It provides a guideline on how to identify categories, linking them, and establish a relationship. This method due to its compatibility with the data collection method of this research and not creating a restricted formulation is suited to the current research. It encourages to continuously review earlier stages of the research and change the direction if it is necessary. Therefore, this method has been used at the final stage to provide the possibility of arriving at a theory from all collected qualitative data and move forward and backward freely through collected data to achieve the result.⁶

6 A. Bryman, R.G. Burgess. Analyzing Qualitative Data. First Edition. London/New York. Routledge. Revista de Antropología. 1995, Vol. 50, No. 1, P. 232.

McGraw-Hill. Grounded Theory Methodology. Open University Press. [Online]. The United Kingdom. 2017-2018. [Accessed: March 2019]. Available at < <https://www.mheducation.co.uk/openup-homepage>>.

B. G. Glaser, A.L.Strauss. "The Discovery of Grounded Theory: Strategies for qualitative research". The USA. Aldin Transaction. A division of transaction publishers. 1967,2006, 271 P. ISBN 0-202-30260-1.

• CONCEPT OF URBAN PARK

Essentially the first thing that will come to the minds of people when they are thinking, talking, or hearing about nature is a place which is untouched by humans. It is also sometimes considered as an area that exists far from the cities however it is more blurry in reality. Nature can be everywhere surrounded us in and outside the cities and even in our homes. Urban areas are made up of the built environment which can be divided into the structures and external environments of them. The word built environments, built world or built-up nature is generally referred to as something which is humanly made. It will provide a setting for human activities and ranging from different scales.

Figure No.01 on page 32 clarifies the Built-up nature in this study which refers to all the external environments of buildings in general terms or structures that are humanly made and used for diverse actions. In Figure No.01, the external environment or built-up nature is defined firstly by green space, which is the land that consists principally of unsealed, absorptive, soft surfaces such as soil, grass, shrubs, and trees. Urban green space is, therefore, an umbrella expression for all areas of land covered by this definition of green space, whether or not they are publicly accessible or managed. It includes all areas of parks, play areas, and other green spaces specifically proposed for recreational use, as well as other green spaces with other origins.⁷

7 S. Bell, A. Montarzino, P. Travlou. Mapping research priorities for green and public urban space in the UK. Urban Forestry and Urban Greening. UK 2007, Vol. 6, No. 2, P. 103–115.

F. Kienast, B. Degenhardt, B. Weilenmann, Y.Wäger, M. Buchecker. GISassisted mapping of landscape suitability for nearby recreation. Landscape and Urban Planning. 2012, Vol. 105, No. 4, P. 385–399.

C. Swanwick, N. Dunnett, H.Woolley, "Nature, Role, and Value of green space in towns and cities: An overview". JSTOR [Online]. Built Environment (1978). 2003, Vol. 29, No. 2, P. 96-106, [Accessed: March 2010]. Available at <[https:// www.jstor.org/stable/23288809](https://www.jstor.org/stable/23288809)>.

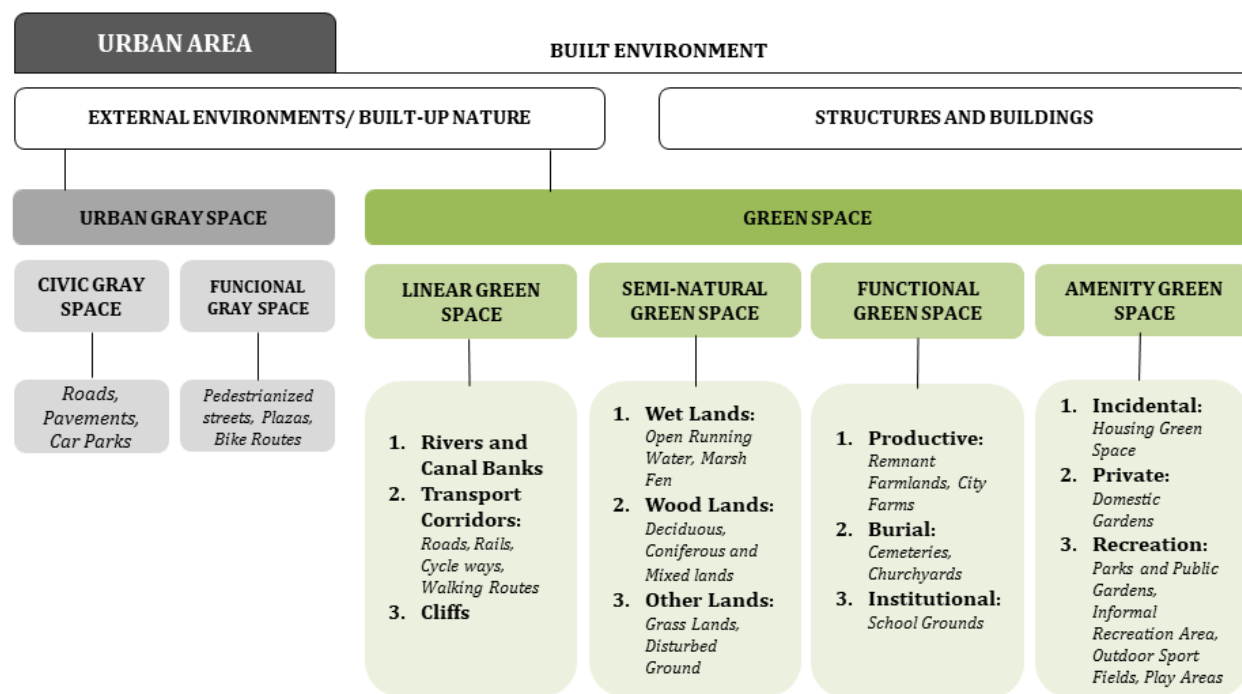


Figure No. 01: Components of the Urban Area and the Division of the Green and Gray Space, By Author

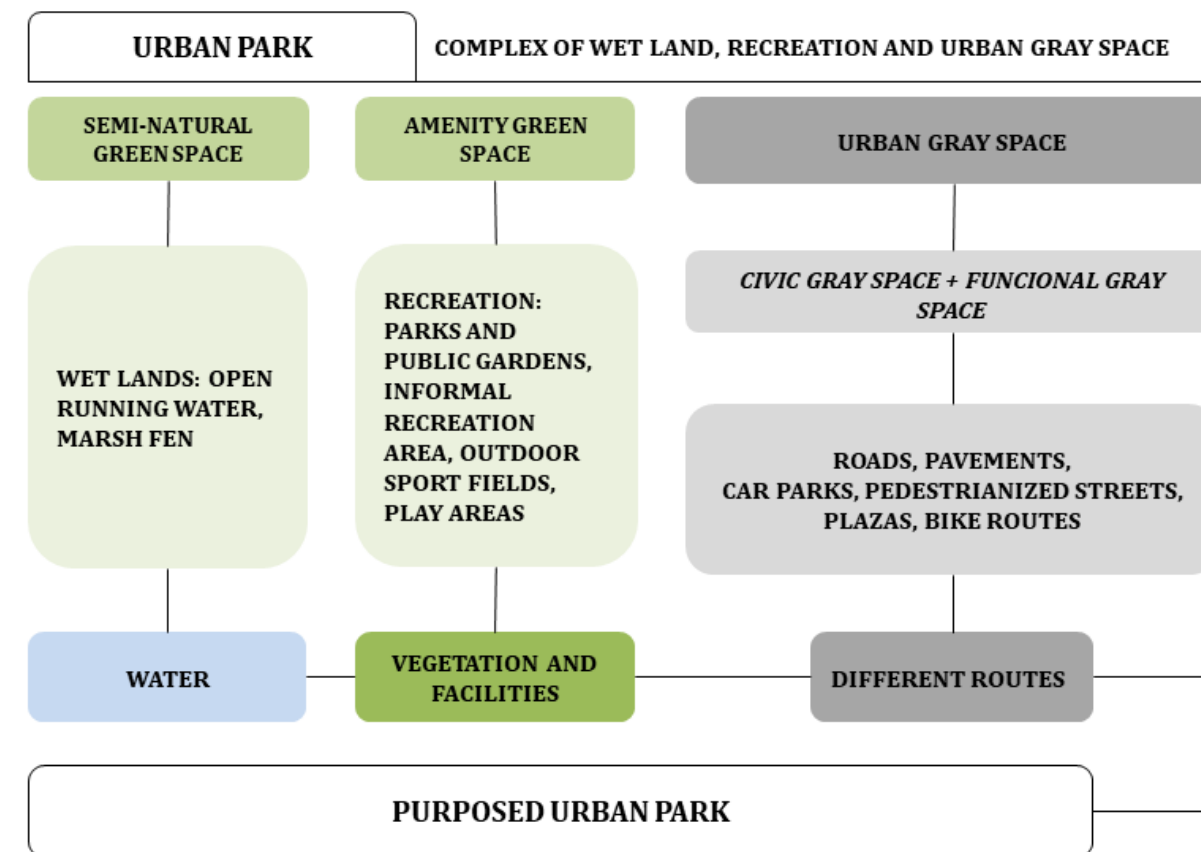


Figure No. 02: Purposed Urban Park, By Author

According to Figure No. 01, built-up nature also includes grey space, which is the land that consists mainly of sealed, water-resistant, hard surfaces such as concrete, paving, or asphalt. Grey space can be further subdivided into functional spaces, which serve a particular practical purpose, such as roads, pavements, car parks, and other hard-surfaced areas connected with different types of built development, and civic spaces. They are publicly accessible areas designed mainly for public enjoyment, including town squares, plazas, pedestrianize streets and walkable areas, boulevards, pavements, and bicycle routes.⁸

Green spaces in the cities are in a broad range of variety, covering from the high maintenance park to natural areas and buffer space between noisy infrastructure and other land uses. From such a quantity of heterogeneity in the type of green space, it follows that the benefits generated by different green space provision, vary greatly. There are many problems for achieving a clear picture of how much green space of different types actually exists in urban areas, due to the lack of reliability in definitions and there is also the risk of double-counting where specific types of green space overlap. Therefore, one of the requirements of this research is to study the current division of urban green spaces which are known and available to make a better understanding and overview of different models.⁹

Figure No.01 reflects the full range of different forms of urban green space that together

8 C. Swanwick, N. Dunnett, H. Woolley, "Nature, Role, and Value of green space in towns and cities: An overview". JSTOR [Online]. Built Environment (1978). 2003, Vol. 29, No. 2, P. 96-106, [Accessed: March 2010]. Available at <[https:// www.jstor.org/stable/23288809](https://www.jstor.org/stable/23288809)>.

9 V. McConnells, M. Walls, "The Value of Open Space: Evidence from studies of Nonmarket benefits, Resources for the Future". Washington DC. 2005.

F. Waltert, F. Schlapfer. "Landscape amenities and regional development: A review of migration". Regional economic and hedonic pricing studies. Ecological Economics. 2010, Vol. 70, No. 2, P. 141-152.

create the green fabric of the urban area. Figure No.02 on page 33 that is based on the hierarchical division subdivides each of the green spaces into different models and comes up with examples to clarify the current forms of the urban green area. Generally, built-up nature in the urban area offers innovative approaches to increase the quality of the urban setting and provide the opportunity for informal recreation and activities close to home or work. It tries to enhance local resilience and promote sustainable lifestyles by improving both the health and the well-being of urban residents. It will provide visual comfort for older people as long as meeting and relaxing place for younger ones.¹⁰

Parks and recreation areas are a component of green infrastructure and are defined as all urban lands of any size which are publicly accessible and covered by vegetation of any kind. It includes gray spaces and blue spaces such as small water bodies, ponds, lakes, and reservoirs as long as facilities to improve physical and mental health. It is an essential element of the quality of life of the civic and also provides the opportunity for their leisure time improvements. Parks are reserved for formal and informal sport and recreation, preservation of natural environments, provision of green space, and/or urban stormwater management.¹¹

10 G. Cranz, M. Boland. "Defining the sustainable Park: a fifth model for urban parks". Landscape Journal. Berkeley. 2004, No. 23. P. 102-120.

Local Development Framework. Bexley. Open Space Strategy, Amenity Green Space. In: London Borough of Bexley. [Online]. London 2013 [Accessed: October 2015]. Available at <https://www.bexley.gov.uk/sites/default/files/2020-05/LDF-Bexley-Open-Space-Strategy_0.pdf>

WHO, World Health Organization. Regional Office for Europe. "Urban Green Spaces: A brief for action". [Online]. Copenhagen. 2017. [Accessed: March 2019]. Available at:< <http://www.euro.who.int/>>.

11 J. R. Wolch, J. Byrne, J. P. Newell. "Urban Green Space, Public Health, and Environmental Justice: The challenge of making cities just green enough". Landscape and Urban Planning, Elsevier. 2014, Vol. 125, P. 234-244.

G. Cranz. "Women in urban parks: Woman and the American cities". Ed: Catherine Stimson. Journal of Women in Culture and Society. Chicago. 1980, No. 5, P. 79-95.

Beside, Urban Parks are currently defined and known as municipal parks, public parks, municipal gardens, or in general term Public Open Space in the cities that offer recreation and green spaces to the residents. They are dominated by vegetation and water that are generally reserved for public use which is mostly bigger or smaller than pocket parks and defined as parks. In this thesis, the concept of Urban Park is the new image of parks consumed as the most complex programmed contemporary type of urban green spaces that support a wide range of functions. However, it has a unique architectural style but it is connected and integrated with the urban activity and plays an important role in the image of the city and also the quality of the residential environment. Historically Parks reveals more concern about social problems and expressed various ideas about nature than ecological matters. In the purposed type ecological problems would be on the zooming point as well as social problems due to their importance and effects on the residents' quality of life in the current era.

According to Figure No.02, the purposed urban park is a programmed combination of urban gray spaces with the recreation part of the amenity green spaces that leads to coming up with new ideas about nature that be able to build upon the social traditional models of parks to introduce a fresh model and help to improve the quality of the residential environments for a better living.

It will not block the accessibility of different types of transportation from private to public and from cyclers to pedestrians. Therefore, it serves as a completely designed and man-made multifunctional space that is integrated into the urban fabric but with vegetation, water, and defined paths as the structures of the area. In this case, Urban Park is a new vision of an

urban area inside an urban area that can separate the residents from the harsh city life inside the city life. In other words, the purposed urban park is a contemporary paradise garden with programmed natural look borders that has the sensation of unlimited borders.

CHAPTER ONE

FROM PARADISE TO PRIVATE GARDENS

1.1. CONCEPT OF PARADISE

Garden in the book “The Genius of Garden” written by John Dixon and Peter Willis is defined as “The purest of human pleasures and the greatest refreshments to the spirits of man”. Gardens are also concentrated or perfected forms of place-making which are perceived as the symbolic site, resulting from the human effort to emerge Eden on the earth.¹²

The concept of paradise originated from the old Persian Architecture and its history started especially from Paradise Gardens of the Achaemenid era. Therefore, to have a great overview of the concept of paradise it is essential to go through them and study Persian Architecture, beliefs, and culture. In Persian Literature, the word “Pardis” derived from the old word “Pairi-Daeza”, which means walled garden (Pairi: Around and Daeza or Diz: Wall), and it has been defined as a luminous and perfumed place, populated by several angelical and beautiful creatures. Persian beliefs on Zoroaster¹³, the Persian prophet, affected the formation of the gardens and these gardens became a metaphor of the Persian Ideals.¹⁴

The religion and tradition of ancient Iran put special importance on agriculture and garden

¹² J. D. Hunt, P. Willis. “The Genius of the Place: The English Landscape Garden 1620-1820”. Well-Illustrated, 1st Edition. London. Elek, 1975, 390 P, ISBN-13: 978-0236310333.

J. D. Hunt. “Greater Perfections: The Practice of Garden Theory”. Philadelphia, University of Pennsylvania Press. 2000, 277P, ISBN 0-8122-3506-1.

¹³ Zoroaster also is known as Zarathustra (Persian: Zartosht) was an ancient Iranian spiritual leader who founded what is now known as Zoroastrianism. It became the dominant religion in Ancient Persia. He was a native speaker of Old Avestan and lived in the eastern part of the Iranian Plateau, but his exact birthplace is uncertain. There is no scholarly consensus on when he lived but other scholars still date him in the 7th and 6th century BCE as a near-contemporary of Cyrus the Great and Darius I.

¹⁴ V. HeydarNattaj, S. A. Mansouri. “A Critical Study on the Chaharbagh Theory in Creation of the Persian Gardens”. Bagh Nazar Journal of Iranian Architecture. 2009. Vol. 6, No. 12, P. 17-30.



Photo No. 01: Ancient Stone Carved Relief of the Symbol of Zoroastrianism and Promising the Paradise, The Faravahar¹⁵ in Persepolis Paradise Garden (518 BC), Iran, Photo by Z. Rad on 2009

¹⁵ Faravahar also is known as Farre Kiyani is one of the most well-known symbols of Iran, Zoroaster, and Zoroastrianism, the primary religion of Iran before the Muslim conquest of Persia, and Iranian nationalism. Even after the Arab conquest of Iran, Zoroastrianism continued to be part of Iranian culture. Throughout the year, festivities are celebrated such as Nowruz, Mehregan, and Chaharshanbe Suri which relate to Zoroastrian festivals and calendar. These are remnants of Zoroastrian traditions. From the start of the 20th century, the Faravahar icon found itself in public places and became a known icon among Iranians. The Shahnameh by Ferdowsi is Iran's national epic and contains stories (partly historical and partly mythical) from pre-Islamic Zoroastrian times. The tomb of Ferdowsi (built early 1930), which is visited by numerous Iranians every year, contains the Faravahar icon as well.

construction and praised this practice. According to the legend, Zoroaster, who invited people to farm and cultivation, made a journey to a heavenly landscape. He crossed over a four branch cross-shape river which divided the world into four parts and received the eternal light. The Zoroastrian belief of dividing the universe into four parts, four heavenly rivers, four-seasons, four composing elements of the world (Soil, Fire, Water, Wind)¹⁶, and the like made a strong effect on ancient Persian culture. In a way that numbers became such myths that have special symbolic functions in addition to holiness or evil. Therefore, the number 'Four' became a holy and symbolic number in the old Persian beliefs. Number Four of the furthest periods, even centuries before prehistory, has been used to represent something solid, strong, and tangible, and is, in a sense, a heavenly figure in Persian culture and architecture.¹⁷

Therefore, ancient Persian beliefs divided the word into four parts of lands which are separated by rivers, and in the middle of these parts is a sea. According to this belief many gardens had been built, which were divided into four parts by water canals and fruit, Cypress,

¹⁶ **Soil:** Soil is the eternal object and bears the pre-existence solid body and the eternity memory in its essence and garden in hot and drylands is a manifestation of the restoration of soil and a metaphor of the paradise on earth

Fire: In the ancient figures, Izadmehr, goddess of the sun which releases you from darkness, is created by the hitting of two pieces of rocks. With no doubt; the Iranian ancient gardens had a place to keep the fire as a fire mantle or fire temple.

Water: Anahita, the goddess of water has always been present in the Iranian beliefs and the life-giving water is divided into four parts in its origin to create a paradise in the heart of a desert. The water floating in the whole garden is the metaphor of the floating of the universe and its renewal.

Wind: In the Iranian gardens, we come across a palace called "Eight Paradise". In Iranian beliefs, eight was a code for the sun and God will communicate through that code with humans. Therefore, in the place of palaces in the Persian Gardens we believe that humans will feel the hidden respiration of the universe in an encounter with his living place.

¹⁷ N. HajiAliAskar, K. Momeni. "The manifestation of number four in the architectural design of the fire temples of Iran". ArmanShahr Architectural and Urbanism Journal. 2018, No. 21, P. 23-38.



Photo No. 02: Incomplete Persian Hand-Woven Carpet Representing a Paradise Garden, Chahar-Bagh, Isfahan, 17th -18th century

the Plane and Pine trees were often planted and in the middle, it was a waterfall and pond. Here was where the idea of Chahar-Bagh (Four Garden) raised and became a prototype for the Persian gardens. In Chahar-Bagh we always have two perpendicular axes of watercourses directed to the North-South and East-West. On the other hand, from the symbolic attitude, number four means four parts of the world and the center of the garden with its items is the navel of the world. Four watercourses which are all ended into one center are showing the main directions and also symbols of time and blessings.¹⁸

Furthermore, there is also another attitude about the Persian paradise geometrical formation. The Persian garden is designed in quadrilateral form. This figure is mostly full square or rectangular. In square geometry, the quarter is the circle, and the circle is the depth of the universe that hides its essence and secrets. From ancient, Iranian know square as a form coming from quartering circles, that can demonstrate the universe due to their symmetries. Therefore, they use this form as the basis of their designs in sacred and holy place plans and paradise gardens of Iran. The geometrical design of the Persian gardens has been reflected in the Persian carpets, potteries, and visual arts.¹⁹

The concept of Persian paradises did not end in Zoroastrianism and it continued during the Islamic era in Iran, flourished, developed, refined and many noteworthy Persian gardens

¹⁸ V. HeydarNattaj, S. A. Mansouri. "A Critical Study on the Chaharbagh Theory in Creation of the Persian Gardens". Bagh Nazar Journal of Iranian Architecture. 2009. Vol. 6, No. 12, P. 17-30.

¹⁹ M. Shahidi, M. Bemanian, N. Almasifar, H. Okhovat. "A Study on Cultural and Environmental Basics at Formal Elements of Persian Gardens (before & after Islam)". Asian Culture and History. Canadian Center of Science and Education. 2010, Vol. 2, No. 2, P. 133.

V. HeydarNattaj, S. A. Mansouri. "A Critical Study on the Chaharbagh Theory in Creation of the Persian Gardens". Bagh Nazar Journal of Iranian Architecture. 2009. Vol. 6, No. 12, P. 17-30.



Photo No. 03: Left: Babur Supervising the LayOut of the Garden- Right: Celebrations in Honour of the Birth of Humayun in the Chahar Bagh of Kabul, Mogul miniature, 1508

were built which are now part of the UNESCO world heritage. During the Islamic era, cultivation and gardening were among the important skills of the people of this land. Islam also believes that man is a creature coming from heaven and Iranian believes on that. Therefore, we can find some characteristics in Persian gardens which are attributed to the heaven promised in Holy Qur'an. Ferdows or Jannat is the name of heaven in Holy Qur'an which means a fresh green land with trees planted around it and are mostly refers to the planted gardens in the middle of a green and fresh land. Iranian people tried to implement the wideness of paradise which is promised in the Holy Qur'an by stretching the landscape directly in the long axis of the garden, opposite the small palace, and dividing the trees into two sides and create such a perspective that shows the garden longer than it is.²⁰

Besides, the Zoroastrianism beliefs of four rivers of paradise continued in Islam and Holy Qur'an expressed that there are four rivers in paradise as:

- A river of fresh water that never stops floating;
- A river of milk with the never-changing taste;
- A river of wine;
- A river of honey.

²⁰ Holy Qur'an, Surah Shora, Verse 23. Translated by M. M. Elahi Qomshehei. 1961.

M. Shahidi, M. Bemanian, N. Almasifar, H. Okhovat. "A Study on Cultural and Environmental Basics at Formal Elements of Persian Gardens (before & after Islam)". Asian Culture and History. Canadian Center of Science and Education. 2010, Vol. 2, No. 2, P. 133.



Photo No. 04: Aerial View of the Eram Garden and its Connection with the City, A Great Example of the Persian Islamic Paradise, 13th Century, Shiraz, Iran, Photo by A Malekzadeh, 2019



Photo No. 05: A Great Perspective Look to the Interior of the Eram Garden, Shiraz, Iran, Photo by B. Ghasemi, IRNA (Islamic Republic News Agency), 2018

The watercourses in the Persian gardens are the metaphors of those rivers in the Qur'an.²¹

Also, Holy Qur'an promised that people who have faith in God will have a palace or parlor in heaven which the fountain is all the time floating in it and believers will rest there forever. Parlor in Holy Qur'an means a very beautiful house on top and in the most Persian paradise gardens, the water fountain starts from the lower levels of the palace and run into the pool or pond which is in front of the building and then floats into the whole garden through four main canals. Therefore, the design of the Persian paradise gardens is completely inspired by their beliefs in Zoroaster and the Holy Qur'an in which they are the metaphor of how they described heaven.²²

Persian gardens became a great prototype in the whole world for creating heaven on the earth and alleviate the harsh climate as we could see in the Spanish, Indian, Mughal, French, and Japanese gardens and like the same pattern.

21 Holy Qur'an, Surah Mohammad, Verse 15. Translated by M. M. Elahi Qomshehei. 1961.

D. Diba, M. Ansari. Persian Garden, Arg-e Bam. Kerman Architecture and Urban Designing History Congress. Civil Cultural Heritage Organization. 1995.

M. Shahidi, M. Bemanian, N. Almasifar, H. Okhovat. "A Study on Cultural and Environmental Basics at Formal Elements of Persian Gardens (before & after Islam)". Asian Culture and History. Canadian Center of Science and Education. 2010, Vol. 2, No. 2, P. 133.

22 Holy Qur'an, Surah Ankabout, Verse 29. Translated by M. M. Elahi Qomshehei. 1961.

M. Shahidi, M. Bemanian, N. Almasifar, H. Okhovat. "A Study on Cultural and Environmental Basics at Formal Elements of Persian Gardens (before & after Islam)". Asian Culture and History. Canadian Center of Science and Education. 2010, Vol. 2, No. 2, P. 133.

D. Diba, M. Ansari. Persian Garden, Arg-e Bam. Kerman Architecture and Urban Designing History Congress. Civil Cultural Heritage Organization. 1995.

1.2. PERSIAN GARDENS

The Persian garden has been since the beginning of time a borrowed landscape, a world of perfect harmony where the climate is moderate, the flora is abundant and a smooth light always shines. While Persian gardens demonstrated the ideals of a heavenly landscape, they were also the expression of harsh environmental performance. The providing and circulation of water in arid lands and the desire to create more conformable habitable microclimates led Iranians to develop the intelligence for organizing processes to find and direct water hidden deep under mountains. A wide brick wall surrounds the entire rectangle plan of the garden and provides a comfortable place where architecture overcame a hostile environment.²³

The creation of gardens and its components and ornaments is the product of deep considerations and experiences of generations and the reflection of their approach to nature. Persian gardens, the oldest evidence of the creation which dates back to 6th century BC in Pasargadae, demonstrates generally modern features. However, some of the concepts employed, particularly the use of right angles and the connection established with the sacred area, are influenced by the historical concepts.²⁴

Various methods of garden designing have existed both in the ancient Egyptian Civilization and in Mesopotamia. The influence of Mesopotamian techniques and concepts is

23 N. Faghihi, A. Sadeghi. Persian Gardens and Landscapes. John Wiley & Sons Ltd. Wiley Online Library. [Online]. April 2012. [Accessed: September 2019]. Available at < <https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.1403>>.

24 UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. "The Persian Garden: Identification of the property". [Online]. 1993. [Accessed: October 2015]. Available at < <https://whc.unesco.org/uploads/nominations/1372.pdf>>.

furthermore evident in the art and culture of Persia. It is the result of the close vicinity of the two civilizations, the presence of the Elamids Civilization to the south of Persia, and the geographical similarities between the two civilizations of Persia and Mesopotamia. Moreover, common ethnical origins of the societies living across the plateau of Iran and the residents of Sindh valley contributes to further possible influences on the concept of Chahar Bagh or Four-Garden.

The use of Chahar Taqi which is the structure that is open to the four directions and geometrical quadripartite divisions in the construction of belvederes in Persian Gardens may also have been inspired by geometrical motifs of Mesopotamia and Sindh valley Civilizations, which illustrate the paradise in a variety of forms.²⁵

David Stronach, who is an archeologist and the professor of the university of Berekely, California, and an expert in the Pasargade and Persian gardens, provides a conclusion concerning the scales of Achaemenids Gardens as compared to those of Mesopotamian Gardens and the innovations employed by the Achaemenids as follows:

“It was once believed that the Achaemenids modeled their gardens after those of Mesopotamia. Recent studies, however, prove that this is only one small part of a much larger whole. Cyrus the Great has undoubtedly employed methods inherited from Assyria and Babylon to deliver political messages through the architecture of Royal Gardens. The great range of his conquests, however, seems to have paved the way for two periodic alterations in the

25 UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. “The Persian Garden: Identification of the property”. [Online]. 1993. [Accessed: October 2015]. Available at < <https://whc.unesco.org/uploads/nominations/1372.pdf>>.

architecture of the gardens. Firstly, his tendency to establish his capital far away from all hostile lands had probably been one of the many motives which led him to build his palaces in an area exceptionally bare of fortifications. Secondly, Cyrus gathered interest in the use of stone, the techniques of which he had acquired following the conquest of Lydia. This led him to design and create watercourses and ponds of carefully carved stone. All this resulted in the creation of the Persian Garden with its total balance and fineness, and, above all, creation of the prototype of Chahar Bagh, which was thus guaranteed to live long.”²⁶

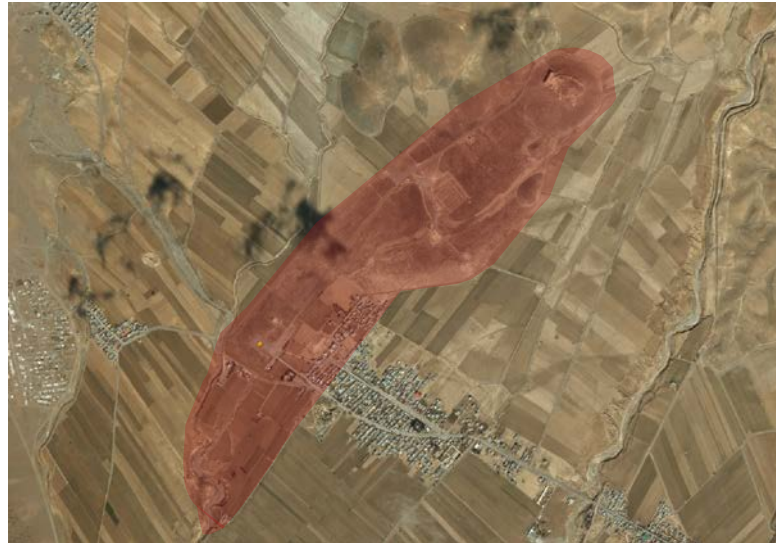
The purpose of designing gardens in Persia was not only restricted to providing green spaces for the inhabitants but also is about creating the opportunity for further interaction between the human and nature as well as creating various ranges of functions and promoting Persian culture through various design elements. The documents show the spiritual feeling for flowers, the importance of gardening and direct interaction between man and nature as the basis of Persian garden design can be seen on the stone-carved of Persepolis too. Also, the Persian garden is an expression of great values and concepts and is well-known as a bridge connecting the two worlds of matter and meaning. The first Paradise constructor in record is Achaemenid emperor Cyrus the Great who is the founder of the Persian Gardens in his paradises of Pasargadae.²⁷

26 UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. D. Stronach. The form of royal gardens of Pasargadae and its influence on other Persian gardens. [Online]. 1989.P. 55. [Accessed: September 2016]. Available at < <https://whc.unesco.org/uploads/nominations/1372.pdf>>.

27 L. M. Farahani, B. Motame, E. Jamei. “Persian Gardens: Meanings, Symbolism and Design”. IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.



Photo No. 06: The Red Square Shows the Location of Pasargadae Complex in Iran, Photo by Google Earth



*Photo No. 07: Aerial View of the Whole Pasargadae Complex and its Surroundings (3.50 Km*820m)(As big as Central Park, Manhattan), Photo by Google Earth*

- **PASARGADAE, SHIRAZ, IRAN (559-530 BC/6TH CENTURY BC)**

During the formation of a huge and unique capital that reflects the Achaemenid empire's greatness, Cyrus the Great ambitiously included a garden in his construction plan. Unlike any other royal gardens that were complementary for the palaces, here in Pasargadae Cyrus put palaces as complementary for his garden. Therefore, the earliest evidence of Persian gardens was recorded in 600 B.C at the palace area in Pasargadae and dates back to the final years of the reign of Cyrus the Great (559-530 B.C). It was here where the “Persian Gardens” were formed. The city of Pasargadae, the most complete evidence of an Achaemenid paradise garden city, covered a vast area and was divided into four different sections separated by two main watercourses. The Regular joint of palaces and gardens built on strong terraces became the prototype for the construction of garden cities throughout the Achaemenid empire.²⁸

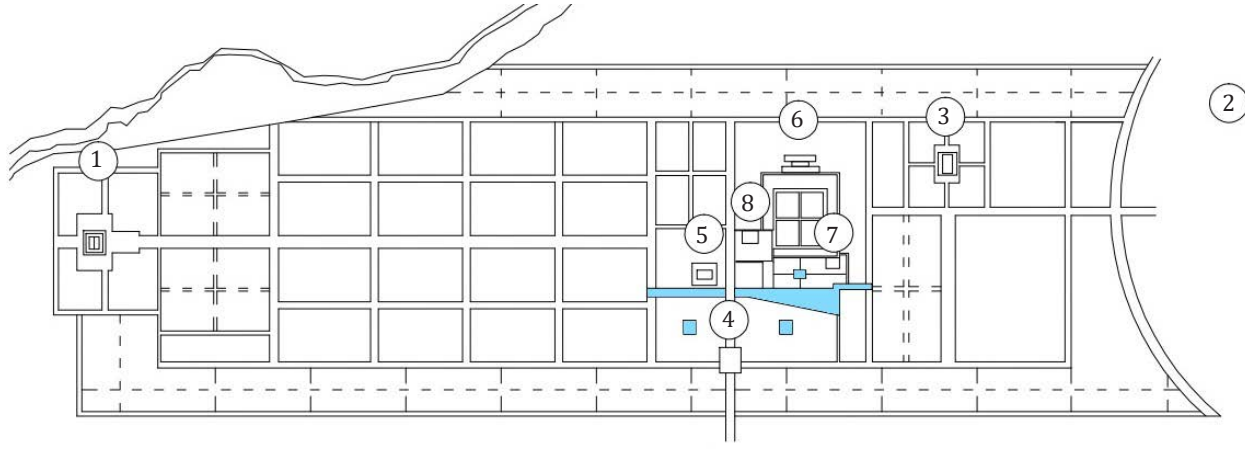
In the plan done by Cyrus, there were some stone water-channels which is not only the evidence of a real garden but although facilitating the connection of the different spaces of the whole area together. Therefore, a straight, geometrically elaborated watercourse and a raised platform for garden viewing that was known as two indispensable elements of Persian Garden design founded in 6th century B.C in Pasargadae.²⁹

²⁸ UNESCO. World Heritage Convention, The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. Pasargadae, Capital of Cyrus the Great. [Online]. 2004. [Accessed: October 2015]. Available at < <http://whc.unesco.org/uploads/nominations/1106.pdf>>.

N. Faghihi, A. Sadeghi. Persian Gardens and Landscapes. John Wiley & Sons Ltd. Wiley Online Library. [Online]. April 2012. [Accessed: September 2019]. Available at < <https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.1403>>.

²⁹ Dr. D. Stronach. “The Royal Garden of Pasargadae: Evolution and Legacy”. Translated by K. Abdi. In Archeologia Iranica et Orientalis Miscellanea in Honorem Louis Vanden Berghe (ed. L. de Meyer, E. Haerinck). Gent. 1989, P. 475-505.

E. B. Rogers. “Landscape Design: A cultural and architectural history”. Editors: J. Moore, E. Stainton, R. A. Gallin, Designer: A. Rogers, Photo: J. K. Crowley, D. Gongora. H. A. Abrams. New York. 2001, 544P, ISBN 0-8109-4253-4.



Drawing No. 01: Plan of Pasargadae by Author, 2020, based on the Sketch done by Dr. David Stonach, Berkely University, 2014

1. Cyrus the Great Tomb

2. Tall-i-Takht Viewing Terrace

3. Worship- Cambyses Tomb

4. Entrance Gate Palace

5. Palace S- Reception Hall

6. Palace P- Residence of King Cyrus the Great

7. Pavilion

8. Pavilion



Drawing No. 02: Pasargadae the Palace Area Showing the Chahar-Bagh and the Pool, By F. Rezayi and D. Stronach, Berkely University, 2014

Pasargadae is proposed as a single nomination because it is a masterpiece of human creative genius in its composite architecture and town planning. It includes the first example of “Four Gardens” defined by water and trees in Western Asia up to the 18th century and the first capital of the first great multicultural empire in Western Asia and perhaps in human history. An empire that recognized and respected the cultural and religious values of each nation and reflected it in its set of laws, exceptional evidence to the Achaemenid civilization, human settlement, and land-use, association with living traditions and beliefs. The existing ruins of Pasargadae show the close relationship between buildings and gardens and the decorative use of water. A walled garden shut out the harsh desert and provided an early paradise of shade, water, and colorful flowers for visual and climatic comfort, not spaces for active use.³⁰

The structure of gardens in Pasargadae seems to be unsophisticated through a superficial view. However, analyzing the layers of meaning concealed behind this simplicity, proves a careful representation of meanings, culture, and identity. Common components and design elements that have been used in Pasargadae gardens and became a prototype for all Persian gardens are:

- Geometric structure of rectangular plan divided into quadrilateral shapes;
- Irrigation system and network of fountains;
- Defined entrance;
- A straight network of the footpath which is coincident with the garden axis and Pavilion located at the intersection of axes.

³⁰ E. B. Rogers. “Landscape Design: A cultural and architectural history”. Editors: J. Moore, E. Stainton, R. A. Gallin, Designer: A. Rogers, Photo: J. K. Crowley, D. Gongora. H. A. Abrams. New York. 2001, 544P, ISBN 0-8109-4253-4.



Photo No. 08: Quadrilateral Division of the Garden in front of the Palace P in Pasargadae with the Stone Water Channels, Archived on Karnaval.ir, 2018

On the other hand, Pasargadae gardens contain some features that usually have a similar dialogue in all Persian gardens conceptual attributed as:

- Being enclosed with walls that work not only as a boundary but also as an interface between the dry outer and green inner area;
- Hierarchy as the entrance to the garden is possible from a completely public area (Entrance Gate Palace) to a semi-public one (Palace S) and then to the private (Palace P);
- The symmetry which can be seen in every detail of Persian gardens from palaces to open spaces, garden axes, and even planting vegetation;
- Rhythm and harmony in all parts of the garden between the natural and architectural elements, use of fountains and pounds and even in linear and horizontal systems to provide a good appearance;
- Centrality which is mostly based on the location of the pavilion as a focal point;
- Multiplicity in unity and unity in multiplicity which is creating unity and unified space among all the diverse and independent components of the garden and improve the interaction between the human and nature;
- Naturalism and enjoying the view by the creation of semi-closed spaces and the presence of a broad and open perspective without any visual barriers provides an opportunity to be engaged with nature.



Photo No. 09: Pasargadae Palace P and an overview of a part of the Complex, Photo by M. Akbari, 2018

One important and significant feature that the Pasargadae garden contains is its irrigation system. Excavations conducted by a French Archeologist under the supervision of Dr. David Stronach from 1999 to 2012 revealed the sign of a big lake with sluices on top-end in Pasargadae garden that its water was supplied by a canal from the Polvar river which is located about 25 km far from the complex. A large canal continues from the lake to the west beside Palace S and then turns right as a narrow channel and connected the irrigation system of the whole garden. Probably Cyrus the Great was supposed to bring an enormous amount of water into his garden to manifest his control of water resources. Also, ruins and signs of a bridge on the main water-channel between Palace S and the Gate is another reason shows that probably it was not just a simple and narrow water channel like the whole garden.³¹

Another prediction by Dr. David Stronach about the concept behind the Chahar-Bagh or Four Gardens division in Pasargadae is about the belief of Cyrus the Great. He believed that the world has four corners and he is the king of the four corners of the world thus it seems that he desired Chahar-Bagh in his gardens to demonstrate his majesty. Actually, in palace P which was the private palace of Cyrus the Great, is the ruin of a throne seat on the garden portico which is located exactly on the long axis of Royal Garden and rises from the stone bench at the mid-point of the portico. Thus, Cyrus the Great had a vast and complete overview of the whole area and everything was under his power and control.³²

³¹ E.B. Rogers. "Landscape Design: A cultural and architectural history". Editors: J. Moore, E. Stainton, R. A. Gallin, Designer: A. Rogers, Photo: J. K. Crowley, D. Gongora. H. A. Abrams. New York. 2001, 544P, ISBN 0-8109-4253-4.

L. M. Farahani, B. Motame, E. Jamei. "Persian Gardens: Meanings, Symbolism and Design". IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.

³² Dr. D. Stronach. "Ancient Persian Gardens: Evolution and Legacy". Presentation by Dr. D. Stronach. Berkely University. Asian Art Museum. [Online]. Oct 2014. [Accessed: October 2019]. Available at < https://www.youtube.com/watch?v=43kX_QWHy6M>.



Photo No. 10: Entrance Gate Palace and Symbol of Faravahar, Photo by Pasargadae Digital Archive, 2018



*Photo No. 11: Left: Tall-I-Takht Viewing Terrace to the whole Complex
Right: Worship and Stone Tower, Photo by Pasargadae Digital Archive, 2018*



Photo No. 12: Aerial View of Palace S or Reception Palace of Pasargadae, The First United Nations Headquarters, Photo by Pasargadae Digital Archive, 2018



Photo No. 13: Persepolis Panoramic View, Capital of Achaemenid Empire, 559-530 BC, Photo by H. Nik, 2018

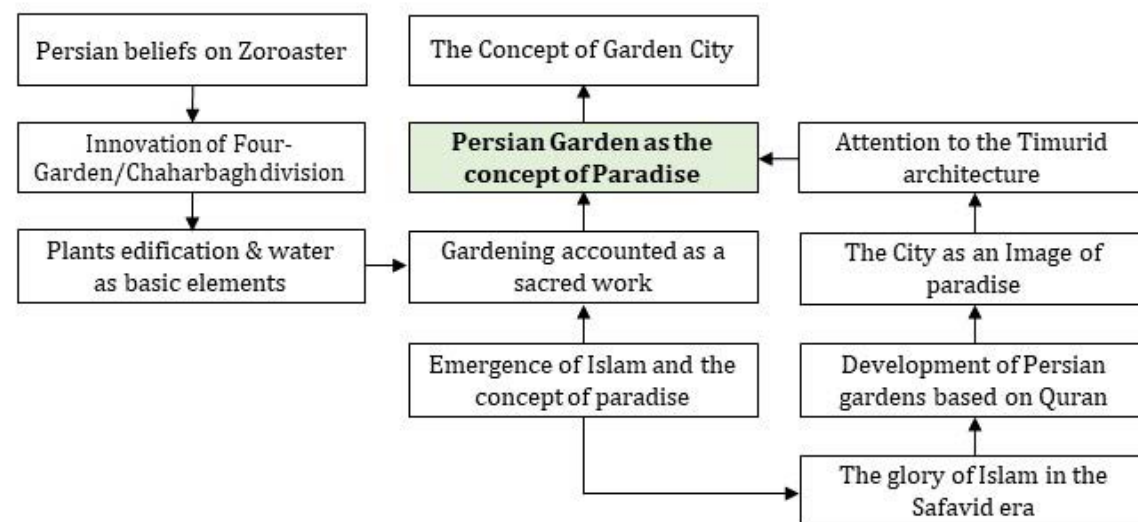


Figure No. 03: Formation of the Persian Garden in history before and after Islam, By Author³³

³³ Timurid architecture drew on and developed many Seljuq traditions. Turquoise and blue tiles forming intricate linear and geometric patterns decorated the facades of buildings. Sometimes the interior was decorated similarly, with painting and stucco relief further enriching the effect. Timurid architecture is the pinnacle of Islamic art in Central Asia and specially in Iran.

According to history, Cyrus the Great did personally most of the gardening of his Royal Garden in Pasargadae, designed the plan, and also programmed how to irrigate the whole area personally. His idea of garden design continued and in Persepolis that was founded by Darius I in 518 BC, as the capital of the Achaemenid empire we can see the same but with more emphasis on the palaces. However, these gardens were royal gardens but they were open to the public during national festivals like Nowrooz (Persian new year), Mehregan, and like.³⁴

Cyrus' gardens became a prototype for the Persian gardens during the time and even in the Islamic era. In the Islamic era, the construction of gardens has been appreciated by Iranians and in addition to the construction of large and majestic gardens outside the cities, construction of gardens inside and around the cities became specific for centuries.³⁵

The life of the Persian Gardens is impossible without water and plants as the main elements of it. Interpretations of the water legends, Anahita goddess³⁶, and Holy Qur'an about water as a source of life and cleanliness turn it into a symbol of holiness which is inseparable from Iranian's mind. Thus the presence and movements of water as a spiritual designed element became a common pleasant feature in Persian Gardens.³⁷

³⁴ UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. Persepolis. [Online]. 2004. [Accessed: September 2019]. Available at < <https://whc.unesco.org/en/list/114/>>.

³⁵ L. Tajaddini. "Review of the Characteristics of Mahan Garden: One Type of Persian Gardens". World Academy of Science. Engineering and Technology. 2011, No.56. P. 1581-1584.

³⁶ **Anahita** is the Old Persian form of the name of an Iranian goddess that is a cosmological figure adored as the divinity of "the Waters" and hence connected with fertility, healing, and wisdom.

³⁷ V. H. Nattaj, E. Rezazadeh. "The Complex of Water, Plant, and Nazargah(Belvedere): Looking for an Archetype of Persian Garden". Manzar Journal, 2016, No.33, P. 52-57.



Photo No. 14: Aerial View, Defined Entrance Building and the Central Pavilion in Fin Paradise Garden, Kashan, Iran, Safavid Dynasty, 16th Century (1590), Area: 7.6 ha, Photos by IRNA (Islamic Republic News Agency), 2015

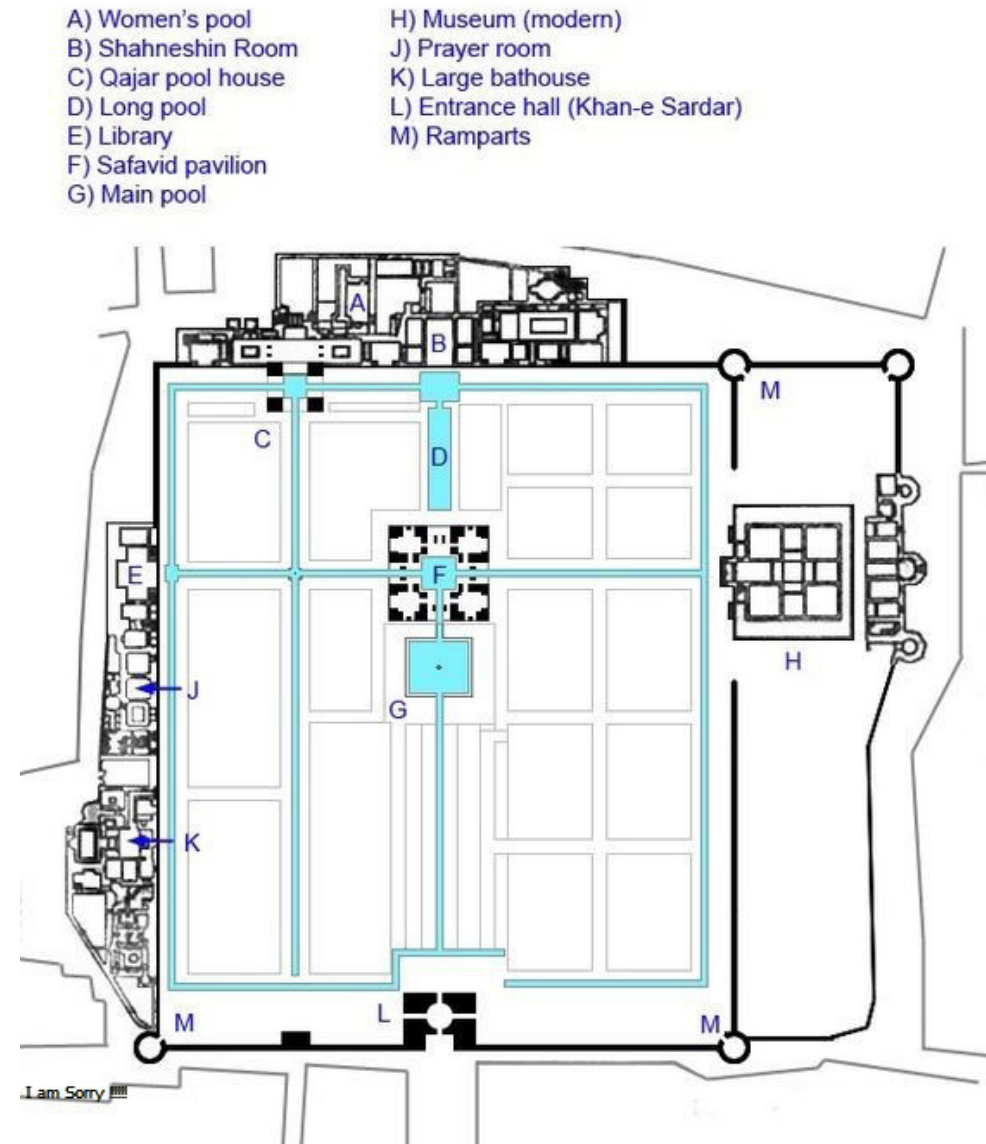
On the other hand, in the Persian Gardens water elements are always present without any intermediaries because Iranians believe that water does not need any other element to gain credit. Therefore, they do not combine it with any status, unlike the European gardens. Water in a lull or running moods in the central axis of the Persian gardens is always a prominent element that creates an infinite picture of the garden for the viewers by reflecting the sky in it as a mirror. Also flowing water creates a pleasant voice in the garden and water in pools and ponds increased the figurative vastness and infinite of garden space.³⁸

As it is clear garden definition is impossible without the presence of plants, and they are another key factor in the creation of Persian Paradises apart from their shapes and species. Plants and especially trees are two holy elements in Persian culture that are concerning purity, fertility, growth, and abundance in the universe and help to trap the Anahita goddess. In the Persian Gardens, plants and trees are used for different purposes as shade, yield, and also ornamental. Therefore, you can see a diversity of fruit trees as the most popular one, shading trees as less frequent and ornamental trees as the most uncommon one in the gardens. On the contrary, there are different species of seasonal and even wild colorful flowers available which are the symbols of God's power and paradise beauties.³⁹

Porches and Belvedere is also another important and inseparable factor in Persian Paradises because for Persians a garden is not a place to walk and enjoy. They prefer to seat with others or alone somewhere under a shade, enjoy the scenery, and spring rainfall.

³⁸ V. H. Nattaj, E. Rezazadeh. "The Complex of Water, Plant, and Nazargah(Belvedere): Looking for an Archetype of Persian Garden". Manzar Journal, 2016, No.33, P. 52-57.

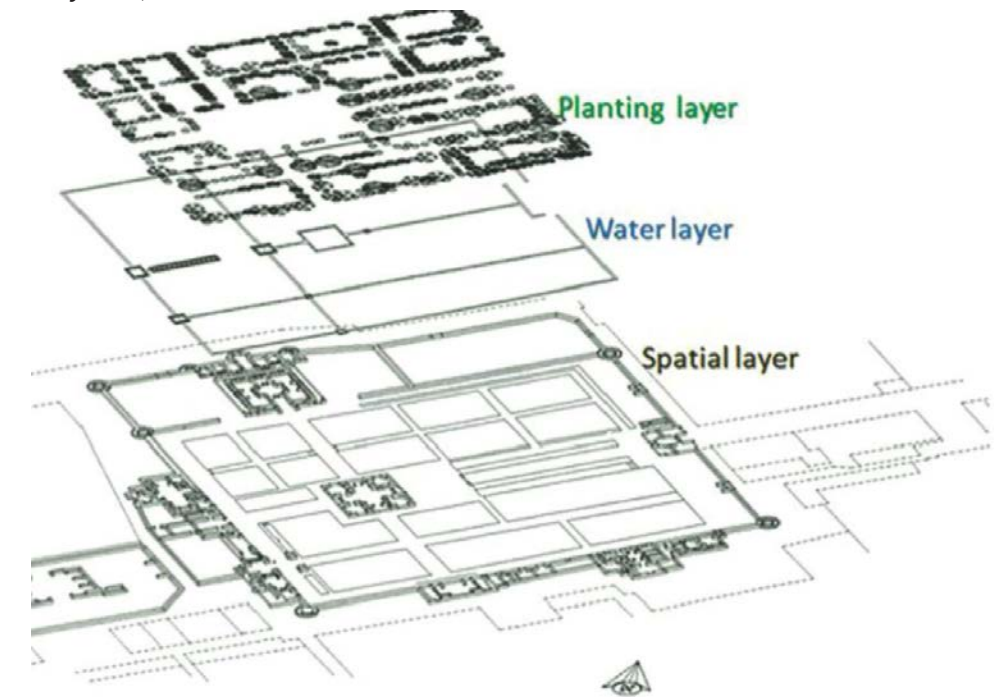
³⁹ L. Tajaddini. "Review of the Characteristics of Mahan Garden: One Type of Persian Gardens". World Academy of Science. Engineering and Technology. 2011, No.56. P. 1581-1584.



Drawing No. 03: Plan of the Fin Paradise Garden, Kashan, Iran, By IRNA (Islamic Republic News Agency), 2015



Photo No. 15: Presence of Water, Plant and Chahar-Bagh division, Main Pool contains 160 small holes a specific mechanism in which water gets out of the 80 holes and drops into the pool by the 80 other holes, Fin Paradise Garden, Kashan, Iran, Photos by IRNA, 2015



Drawing No. 04: Structural Layers of the Fin Paradise Garden, Kashan, Iran, By IRNA, 2015



Photo No. 16: Shahzadeh Mahan Garden, Kerman, Iran, Qajar Dynasty (1850), Area: 5.5 ha, Photo by H. Eftekhari, 2018

- **SHAHZADEH MAHAN GARDEN, KERMAN, IRAN (1850-1860)**

Shahzadeh (Prince) Mahan Garden, is a desert isolated garden that is located at the point 35 kilometers far from south-eastern of Kerman city and near a village called Mahan. The garden was built in the Qajar Dynasty at the foot of the Joupar bare altitudes and benefits from the Tigran Qanat water source for garden irrigation which is originating from Joupar altitudes. Besides, it has been built in a strategic fertile land with an area of about 5.5 hectares at the heart of arid barren land in a rectangular form and a slope of about 6.4%. It benefits from sufficient sunshine and mild wind that a long fence separates it from the undesirable atmosphere of its peripherals and created one of the most famous Persian Paradise Gardens of the Islamic era in Iran.⁴⁰

Indeed, Tigran Qanat which has the responsibility of irrigating the Shahzadeh Garden and originating from the Joupar mountains flows into the garden from the highest level and runs in a sequence of cascades and constitutes the garden design irrigation system. Thus, it creates a marvelous paradise in the heart of the Kerman desert climate and creates a cool atmosphere with the light breeze while the sound of water and birds singing leads you into the world of dreams. Achieving such a quality is the result of accurate planning and designing water base vegetation in that area. The plant species of the garden include evergreen trees like cedar

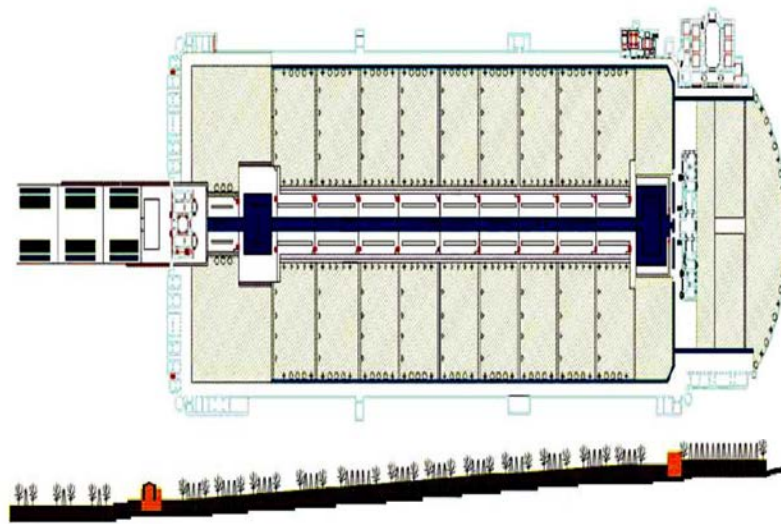
⁴⁰ Geo-environment and Landscape Evolution III: Evolution, Monitoring, Simulation. Management and Remediation of the Geological Environment and Landscape. Edited by U. Mander, C. A. Brebbia, J. F. Martin-Duque. Southampton, Boston. WIT Press, UK, 2008, ISBN 978-1-84564-117-7.

L. M. Farahani, B. Motame, E. Jamei. "Persian Gardens: Meanings, Symbolism and Design". IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.

N. Faghihi, A. Sadeghi. Persian Gardens and Landscapes. John Wiley & Sons Ltd. Wiley Online Library. [Online]. April 2012. [Accessed: September 2019]. Available at < <https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.1403>>.



Photo No. 17: A look to the Shahzadeh Mahan Paradise Garden, Kerman, Mahan, Iran, Photo by H. Eftekhari, 2018



*Drawing No. 05: Plan and Section of Shahzadeh Mahan Paradise Garden (407*122m), Kerman, Mahan, Iran, By A. Shafei, 2007*

and pine and in the plots, the fruit trees are planted symmetrically on the main axis while the symmetrical planted colorful flowers give pleasure and complete appearance to it.⁴¹

In Persian Paradise gardens the beauty of the four-part, cross-axial grid for gardens lay in the simplicity of irrigation. Typically, water could be introduced from a single source, such as through a channel, and circulated via a network of canals into each quadrant. The flooding of the respective quadrant for a sufficient time to penetrate the soil and reach the plant roots. Stone or tile-lined canals contained entry points that through a series of opening and closing access using mud or stones allowed water to access all plants evenly. An important point in the irrigation system of Persian Gardens and also Shahzadeh Mahan Garden is about the main water source called Qanat which is a water installation that pulls water from underground through digging canals inside the soil and lets the water flows on the surface. When water comes out of the source of Qanat, it is controlled and floated in the garden. Therefore, Qantas or kariz is a slightly sloping underground channel to transport water from an aquifer or water well to the surface for irrigation and drinking, acting as an underground water-course. This is an old system of the water system from a deep well with a series of vertical access channels. The qanats still create a reliable supply of water for human settlements and irrigation in hot, dry, and semi-dry climates, but the value of this system is directly related to the quality, volume, and regularity of the water flow.⁴²

41 N. Faghihi, A. Sadeghi. Persian Gardens and Landscapes. John Wiley & Sons Ltd. Wiley Online Library. [Online]. April 2012. [Accessed: September 2019]. Available at < <https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.1403>>.

Geo-environment and Landscape Evolution III: Evolution, Monitoring, Simulation. Management and Remediation of the Geological Environment and Landscape. Edited by U. Mander, C. A. Brebbia, J. F. Martin-Duque. Southampton, Boston. WIT Press, UK, 2008, ISBN 978-1-84564-117-7.

42 A. Kalantari. "Persian Paradise Gardens: History-Elements-Influences". Faculty of the Usc School of Architecture. The University of Southern California. August 2011.

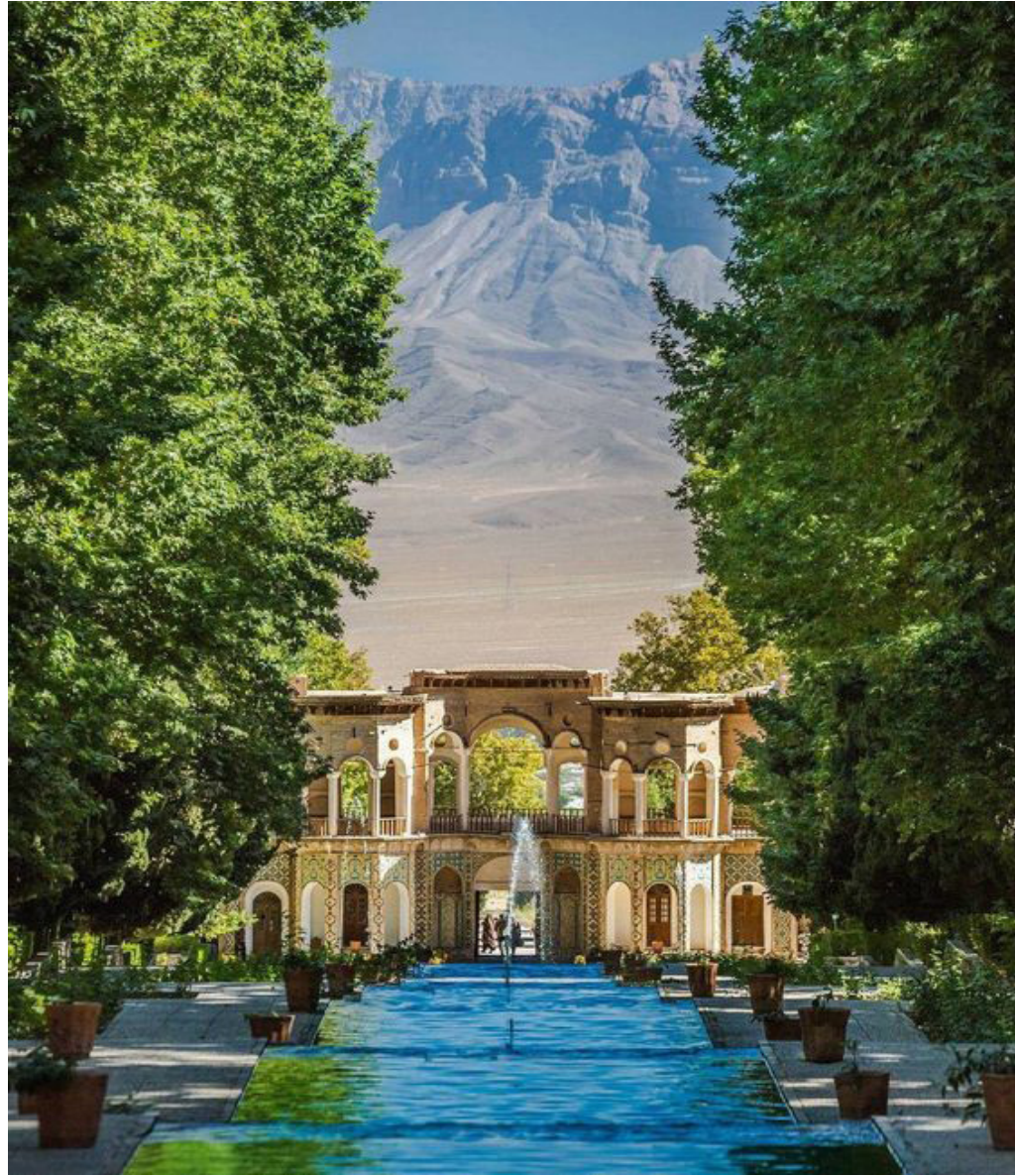


Photo No. 18: View of the Main Entrance Gate of Shahzadeh Mahan Paradise Garden from Inside, Photo by R. Mir, 2007

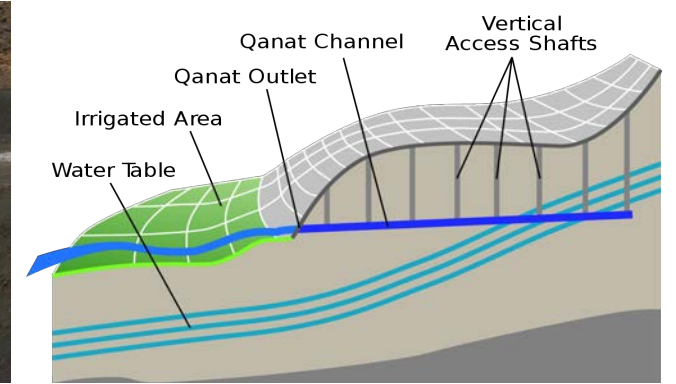


Photo No. 19: Water Canal from Tigran Qanat of Joupar Altitude to Shahzadeh Mahan Garden - Detail of Qanat Structure - Main Pool of the Garden Irrigation System (Main Reservoir), Photo by Kh. Reza, 2017



Photo No. 20: Taj Mahal Garden (1632-53), One of the Largest Persian Model Gardens, India, Photo by B. Dalton, 2005

1.3. PERSIAN GRADENS AS AN INTERNATIONAL PATTERN

The impressive design of the Persian gardens, along with its ability to respond to extreme climatic conditions made them a reference for garden design in Europe and other regions of the world. Therefore, Cyrus gardens or in general term Persian Paradise Gardens have exerted a profound legacy outside the borders of Iran, and especially in Europe. The Greeks adopted the Persian garden after Alexander's conquests of Persia and most likely during the ensuing Seleucid era. The Persian term Pardis entered the Roman lexicon which facilitated its transmission to other European languages and rendered into the Latin Paradisus, and from there entered into European languages such as French Paradis, German Paradise, and English Paradise. The word entered Semitic languages as well as Akkadian Pardesu, Hebrew Pardes, and Arabic Firdaus and even the Bible commemorates the word "Paradise" in its lexicon.⁴³

The tradition and style of garden design of Persian influenced the design of gardens from Europe to India. One of the significant reasons that Persian Gardens became a reference for the world is related to their unique design which is the original result of an inspired and intelligent application of different fields of knowledge such as technology, water management, engineering, architecture, botany, and agriculture. The notion of the Persian Gardens infiltrates Iranian life and its artistic expressions inspired also in the arrangement of the gardens.

⁴³ L. M. Farahani, B. Motame, E. Jamei. "Persian Gardens: Meanings, Symbolism and Design". IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.

UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. The Persian Garden. [Online]. 2011. [Accessed: September 2019]. Available at < <https://whc.unesco.org/en/list/1372/>>.



Photo No. 21: Persian Gardens as a Reference for Garden Design of Belvedere Palace (1714-23), Viena, Austria, Photo by Wien Info, 2015

The features that carry outstanding universal value are the layout of the garden expressed by the specific adaptation of the Chahar-Bagh within each part and articulated in the flower beds.

One significant value belongs to the water supply, management, and circulation systems from the source to the garden, including all technological and decorative elements that allow the use of water for functional and aesthetic requirements. Besides, the arrangements of trees and plants within the garden that contribute to its characterization and specific micro-climate. Also the architectural components, including the buildings but not limited to it, that integrate the use of topography and vegetation to create unique man-made environments. And the association with other forms of art that in a mutual interchange has been influenced by the Persian Gardens and has in turn contributed to certain visual features and sound effects in the gardens. All these features together promote the world to use Persian Gardens as a reference to garden design for centuries.

Additionally, Persian Gardens are outstanding examples of a type of garden design achieved by utilizing natural and human elements and integrating significant achievements of Persian culture into a physical and symbolic-artistic expression in harmony with nature. Therefore, it has become a model and reference for the geometrically-designed garden layout, diffused across the world. They also exhibit an important interchange of human values, having been the principal reference for the development of garden design in Western Asia, Arab countries, and Europe. It is the geometry and symmetry of the architecture, together with the complex

water management system, that seems to have influenced design in all these gardens.⁴⁴

Accordingly, the Greeks, Romans, and succeeding European civilizations were to build parks and gardens on the Persian model. The breathtaking gardens of Versailles France, the baroque gardens of Belvedere Palace of Austria may never have existed today if it was not any Cyrus gardens existed at Pasargadae.

44 UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. The Persian Garden. [Online]. 2011. [Accessed: September 2019]. Available at < <https://whc.unesco.org/en/list/1372/>>.

2.1. NEW PROTOTYPE FOR URBAN PARK IN THE METROPOLIS

The importance of green spaces is not hidden to anyone and during history, as it represents an important element for sustainable human living. When ancient empires extended their power over rival territories as in the case of ancient Persia, they increased the tributary area of the capital city and enabled it to become a great metropolis with gardens inside. Nowadays, the cities are considered to be the most complex non-natural ecosystems that their viability and sustainability depend clearly on nature, both around and inside the urban structure.⁴⁵

From the time of Cyrus the Great, gardens achieved a new meaning and became designed spaces mostly for recreation and leisure. The joy and pride that the Persians felt for their parks, took for granted in other nations. Until the 11th Century gardens were mostly royal and private ones that were open to the public just in some national or local festivals. But then because of the large-scale migration from rural to urban areas or in general term globalization the demand for providing green spaces for the inhabitants increased. Therefore, a new era for garden designing started and more public gardens were constructed based on the Persian Garden model. The symmetrical garden design continued until the 19th Century that John Claudius Loudon represented a new image of symmetry and invented a new image of public parks.⁴⁶

⁴⁵ G. S. Handley, J. Ennos, A. Paulit. "Adapting Cities for Climate Change: The Role of the Green Infrastructure". Built Environment. 2007, Vol. 33, No. 1, P. 115-133.

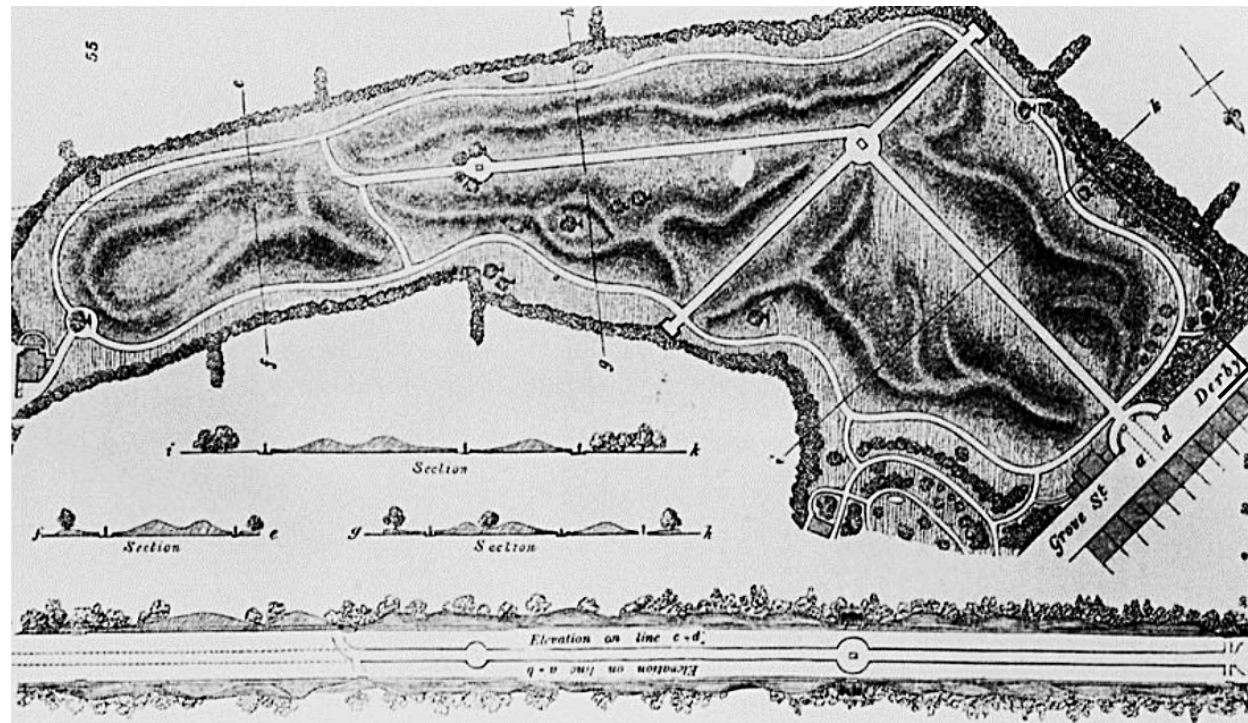
H. Hoyt. Forces of Urban Centralization and Decentralization. American Journal of Sociology. University of Chicago Press. 1941, Vol. 46, No. 6, P. 842-852.

⁴⁶ L. M. Farahani, B. Motame, E. Jamei. "Persian Gardens: Meanings, Symbolism and Design". IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.

- **DERBY ARBORETUM, DERBY, ENGLAND (1839) JOHN CLAUDIUS LOUDON**

John Claudius Loudon was a botanist garden and cemetery designer. He delighted to be summoned to the industrial town of Derby in the spring of 1839 to layout an 11-acre arboretum. Arboretum was a gift to the town from its former mayor, Joseph Strutt. Loudon got the opportunity to demonstrate his idea that a landscape containing the beautiful samples of nature could improve the general populace, relieve the misery of the working poor, and produce among the mingled classes attitudes of mutual respect and civic pride. He integrated the awkwardly shaped parcel with an efficient circulation system, covered its boundaries with dense planting, and made less apparent its limited dimensions with a series of linear hills. He tried to focus the view on the immediate surroundings and divided people and objects elsewhere on the grounds, as design, the Derby Arboretum drew mixed reviews. The two broad straight gravel path that constituted the Arboretum's cross-axis were provided for those who preferred simple relaxation to botanical edification to walk along. Pavilions at the ends of the crosswalk provided shade or shelter from the rain.⁴⁷

Derby Arboretum opened in 1840 and is often described as Britain's first public park. In 1859 the Arboretum was one of several parks visited by Fredrick Law Olmsted and also a forerunner of the work of Joseph Paxton. It is thought that Fredrick Law Olmsted may have incorporated feature of Loudon's work into his design for Central Park in New York. In the 19th-century designers challenged how to connect botanical specimens, historical ruins, glasshouses, and summerhouses, rock and kitchen gardens, flowers and fountains



Drawing No. 06: Photo No. 18: Plan, Derby Arboretum, By John Claudius Loudon, 1839

⁴⁷ A. Tate. *Great City Parks*. London. USA and Canada: Spon Press. 2001, 218P, ISBN 0-419-24420-4.

within an articulated framework. What Loudon called the axis of symmetry was the reason for his design's coherence. As he explained it:

"In the simplest kind of symmetry, the two sides are equal and alike, and the axis is, of course, easily discovered; but in cultivated and refined symmetry, the sides are unequal, and so combined and varied with a center, that it requires the eye of a philosophical artist to detect the axis."

Therefore, Loudon sought a sense of balance, not a mirror imaging of parts, and his axis were not necessarily visible, but sometimes simply implied. With the axis of symmetry as an organizing principle, he arranged garden features and vegetation in various ways to produce a balanced effect.

Besides, design harmony could also be achieved through congruity. Congruity meant respecting the character of the existing landscape as much as the abilities of the gardener, choosing local stones for boulders in rock gardens, placing water bodies in low-lying areas where they would naturally be found, banning sculpture and architecture of purely associative nature, avoiding inharmonious juxtapositions and proximity in the arrangement of different plants, and developing zones of transition between evidently different parts of the garden, for instance, the area between a smooth lawn and a rock garden.⁴⁸

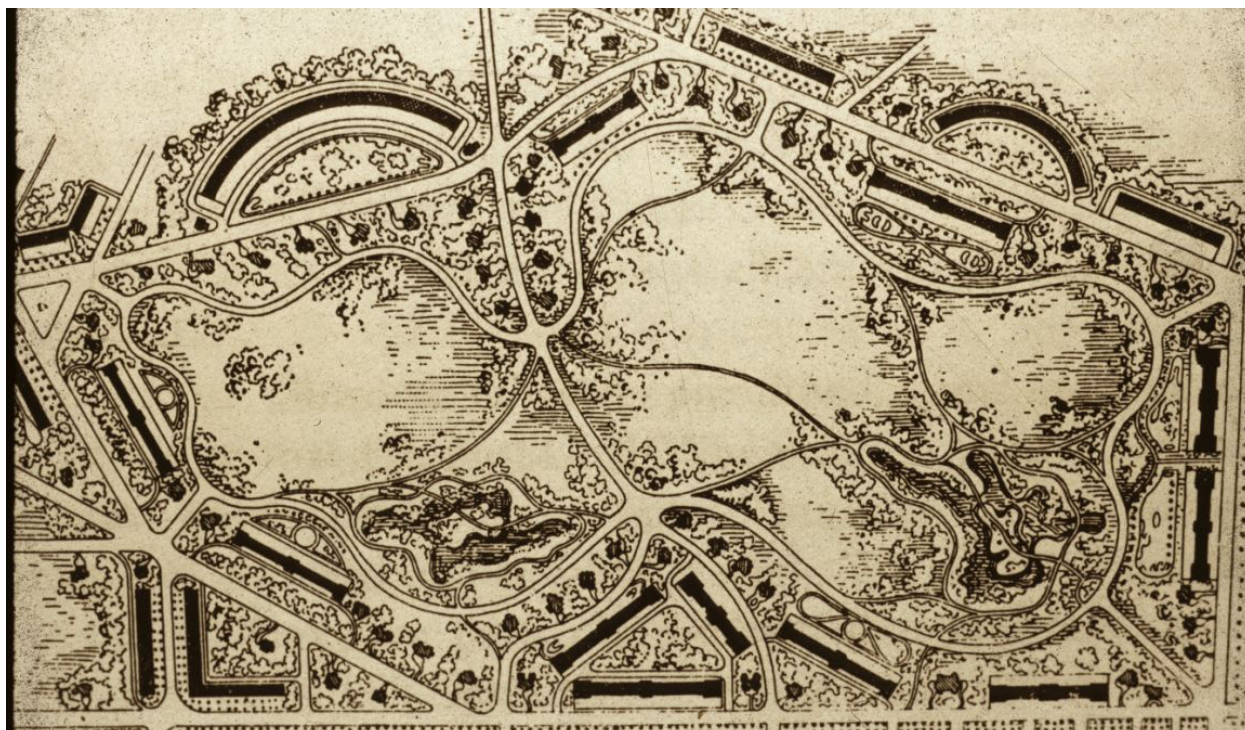
Except in the case where the purpose of the design was the historicizing ones, Loudon's

48 G. F. Chadwick. *The Work of Sir Joseph Paxton, 1803-1865*. London. Architectural Press 196. Printed by Willmer Brothers and Haram Limited Birkenhead.

A. Tate. *Great City Parks*. London. USA and Canada: Spon Press. 2001, 218P, ISBN 0-419-24420-4.

promoted circle form and rococo curvaceous line more than straight lines. For instance, to reduce difficulties in viewing planting beds from a ground-level perspective they were frequently mounded. But rules are made to be broken and contrast rather than congruity was the purpose in some cases. In the hands of Joseph Paxton, some amazing ingenious effects were achieved through unexpected juxtapositions of the seemingly natural and the highly artificial. Paxton more than any other beneficiaries developed Loudon's vision in linking technology to horticulture by designing one of England's earliest municipality-funded public parks, Liverpool's Birkenhead Park. Manipulating the scenic potential of the site rather than making space for sports activities was the preference of Paxton in his design.⁴⁹

49 G. F. Chadwick. *The Work of Sir Joseph Paxton, 1803-1865*. London. Architectural Press 196. Printed by Willmer Brothers and Haram Limited Birkenhead.



*Drawing No. 07: Birkenhead Park Plan (1.30km*780m), By J. Paxton, 1843*

- **BIRKENHEAD PARK, LIVERPOOL, ENGLAND (1847) JOSEPH PAXTON**

Birkenhead Park was designed by Sir Joseph Paxton (1803-1865) in 1843 and officially opened in 1847. It was known as the park's movement pioneer that the influences were not just terminated in England but also reached abroad in the whole European continent and United States. In 1820 and for about 10 years later Birkenhead faced a rapid industrial growth that made Birkenhead as an industrial Center. Moreover, there was an awareness growth about the side effects of the overpopulation and terrible living and working conditions that appeared in industrial areas in the whole country. In this case, park movements found also its place among the other different reform movements. In 1841 the idea of creating a public park in Birkenhead raised for the first time, purposed to improve the health of the industrial workforce by providing an open space for public use.⁵⁰

Later on, in two years, the first world's publicly funded park had been constructed. The park was mostly a suburban model and combining the suburb with the public park. 226 acres were bought but just 125 acres were designed for public use, and the remaining acres were sold for private residential developments. The wealthy people financed the furnishing of the park and in exchange were allowed to take advantage and combine spatially with the park's landscape. In contrast, in the American cities reserving a neutral free form open space for the whole city was always an argument in their developments and that is why Central Park followed more public character. Besides, nature had such a relaxing and peaceful character in the English models while Olmsted believed that nature in the ring of the park should

⁵⁰ C. Steenbergen, W. Reh. "Metropolitan Landscape Architecture: Urban Parks and Landscapes". Netherlands: THOTH. Chair of Landscape Architecture. Faculty of Architecture, TU Delft. 2011, 446P, ISBN 978-90-6868-591-6.



Photo No. 22: Birkenhead Park, Aerial View (1847), Photo edited by A.D. Francis, 2015

sparkle like a raw diamond in the urban pattern. Olmsted has studied the design principles and also stock in trade of the Birkenhead Park during his visit in 1852. Water management, the system of moving soil, the separation of transportation routes with their high quality of construction were the most sharpened points for him.⁵¹

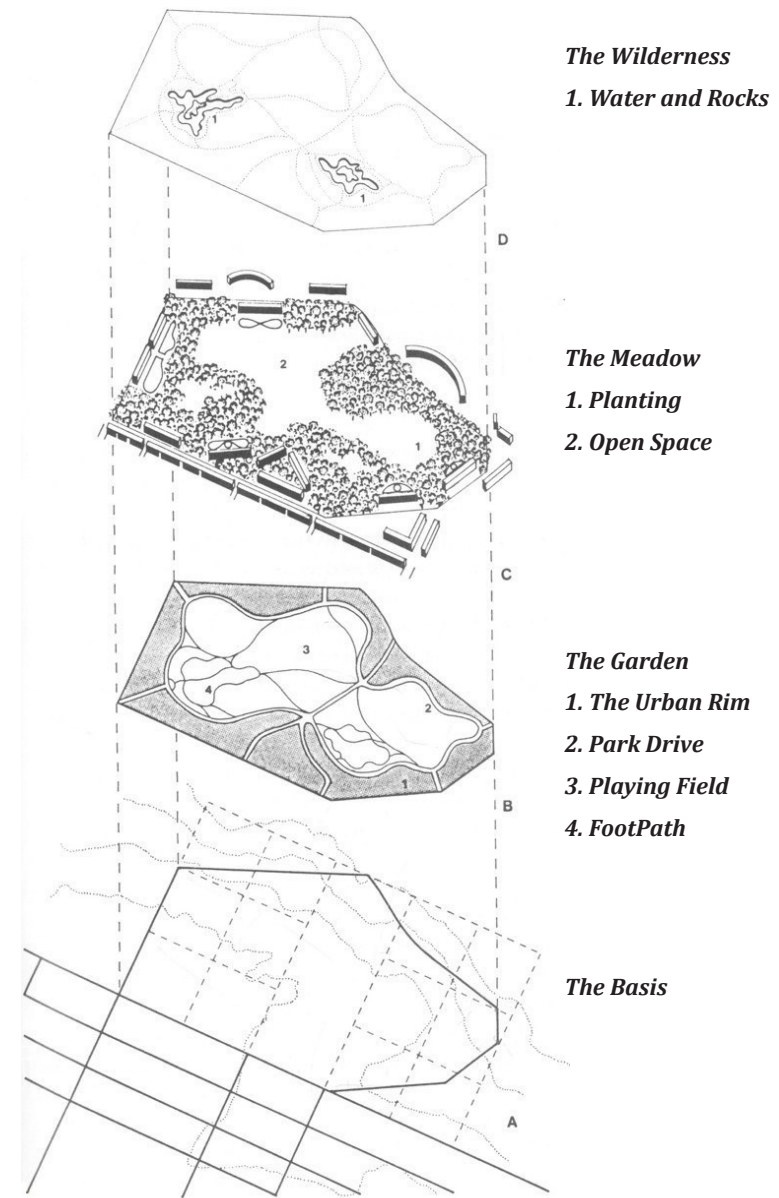
“Birkenhead Park marks the end of the urban transformation of the landscape garden, which had seen the development of the city park as an autonomous form for the first time. As such, it benefited fully from the work of John Nash in Regent’s Park in London, scarcely ten years earlier”.

Birkenhead Park was named as an anchorage to the urban grid because the design matrix of the park was taken from the urban grid of the Birkenhead. Joseph Paxton drew diagonals between the points where the boundary of the park intersected the lines of the urban grid and the corners of the border. To anchored the park into the urban grid Paxton placed the entrances of the park with their cabins at these intersected points and in this way various entrances involved with one another and his goal were achieved. Besides, the ponds and crescents on the south were similarly included in the design plan. Paxton defined a pattern of neighborhoods for different types of dwellings in and along the border of the park. For example, on the lower side of the park row houses were designed for the working class to bounded this part as close as possible to the ports. However, the idea of bordering the upper side with terraces and crescents were based on the concept of the Regent’s Park and had views out over the park, Mersey, and Liverpool. Moreover, the area between the interior of

⁵¹ C. Steenberg, W. Reh. “Metropolitan Landscape Architecture: Urban Parks and Landscapes”. Netherlands: THOTH. Chair of Landscape Architecture. Faculty of Architecture, TU Delft. 2011, 446P, ISBN 978-90-6868-591-6.



Drawing No. 08: Birkenhead Park Plan, By Birkenhead Park Digital Archive, 2016



Drawing No. 09: Birkenhead Park Structural Layers, By C. Steenberg, 2011



Photo No. 23: Grand Entrance to Birkenhead Park, Photo by A. Buildings, 2014

the park and the surrounded streets was filled with detached houses.⁵²

Circulation was an important point in the design of Birkenhead Park. Thus the separation of the transportation routes was known as a wealthy point and anchored the park into the grid of the new city. The system of footpaths within the park linked all parts and has a convenient connection to the urban network of roads. It works independently and crossing the central part of the park and the wilderness. The park is surrounded by roads for regular traffic of the town and accessibility, because of the length of the park, a transverse road (Ashville Road) as a public urban thoroughfare was necessarily crossed the park. Park Drive for the pleasure traffic separated the outer private and semi-public parts of the park and the interior public part. Joseph Paxton also used the branches of Ashville Road to access terraces, crescents, villas, and gardens. In the landscape garden, the paths were arranged in a way that focuses on the house but here was different and transformed into a circular form going around the whole park and make various non- hierarchical viewing points. The design of the park took the beauty of the area by adapting lawns and trees and slopes from nature and accommodating the needs of human beings. Birkenhead Park was not the first public park that had such a system of circulation but the separation of types of transportation was more complete there, and it must have been a complete and significant model at the time of its completion than the other existed ones.⁵³

⁵² E. Stevenson. "Park maker: A life of Fredrick Law Olmsted with a new introduction by the author". Originally Published: New York: Macmillan. 1977, 528 P, ISBN 0-7658-0614-2.

⁵³ C. H. Voorsanger, J.K. Howat. "Art and the Empire City: New York 1825-1861". The metropolitan museum of art, New York. Yale University Press, New Haven, and London. 2000, 639 P, ISBN 0-300-08518-4.



Photo No. 24: Top- Passeig de Gracia, Palau Marçet, Barcelona 1900, Photo by Barcelona Antigua Online Archive, 2020



Photo No. 25: The View South from Park Avenue and 94th Street, 1882, Museum of the City of New York Archive, 2020

2.2. Plan of Cerdà vs Plan of Randel and Urban Park Movement

Great cities are well-known because of their great parks and one of the criteria for measuring the city's greatness, is their ability to provide natural beauty, recreation, and initial open spaces for their citizens. In 1857 the movement of interest for having a pleasure ground starts in America, when Fredrick Law Olmsted, Calvert Vaux, and more than 3,000 workers created Central Park in the gridiron layout of Manhattan designed by John Randel Jr. in 1811 and known as Commissioner's plan. Even though thousands of parks were constructed and millions of words were written about the features and principles of creating a park, but they never finished and remained vital and impressive to the cities and researchers.⁵⁴

It was not just America and Olmsted who were thinking about having a pleasure ground for their cities of future, so that happened in Europe also by a Catalan engineer Ildefonso Cerdà Suñer with his gridiron layout and concept of greenery system in the future of Barcelona. Cerdà was aware of the importance of green spaces in the cities that were planning to become a metropolis in the future, therefore, he designed his plan for the city with significant attention to the green areas and open spaces and meant a garden-city for the upcoming Barcelona.⁵⁵

The gridiron layout of a town or city is not new and is a pervasive city design on earth. Both cities of Manhattan and Barcelona are defined by the strong character of their grid.

⁵⁴ P. Harnik. The Excellent City Park System. The trust for public land, Conserving land for people. Reprinted in 2006. Pennsylvania Washington D.C. 2003, 44P. ISBN 0-9672806-5-6.

⁵⁵ J. Urbano. "The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning". Focus. 2016, Vol.12(1).

However, Barcelona and Manhattan are different in the dimension of their city blocks but they illustrate a comparable example with each other and following relatively the same spatial morphology of cities. In the 1850s when the grid of Manhattan was halfway implemented, Barcelona was starting to be planned. Analyzing urban grids of Manhattan and Barcelona in terms of morphological growth of their urban structure will help the thesis to find more relevant space and morphology for the future urban park of Barcelona city.

The grid of Manhattan has taken throughout his evolution two different growth processes which are organic grid and uniform grid. The organic grid has resulted from the formation of a bottom-up growing spatial structure. Later, the uniform grid has started with a top-down planning decision which suggests imposing a uniform grid on the vacant areas of the island region. The uniform grid plan has commissioned in 1807 and adopted in 1811 and afterward has taken several deformations due to the topography of the island along with other reasons. Finally, the Manhattan grid is a result of the both growth process which combines the organic grids with the uniform grids and form the whole of Manhattan Island.

Furthermore, analyzing the urban structure of Manhattan shows the importance of certain elements such as Broadway and Central Park within the grid. Broadway is marked as a unique element within the existing spatial structure because it is the only diagonal element that crosses the planned uniform parts of the grid. Moreover, Central Park is another unique element in the urban structure of Manhattan because it is forming a large gap in the geometrical center of the island.

The grid of Barcelona has also experienced two notable growth processes throughout a long

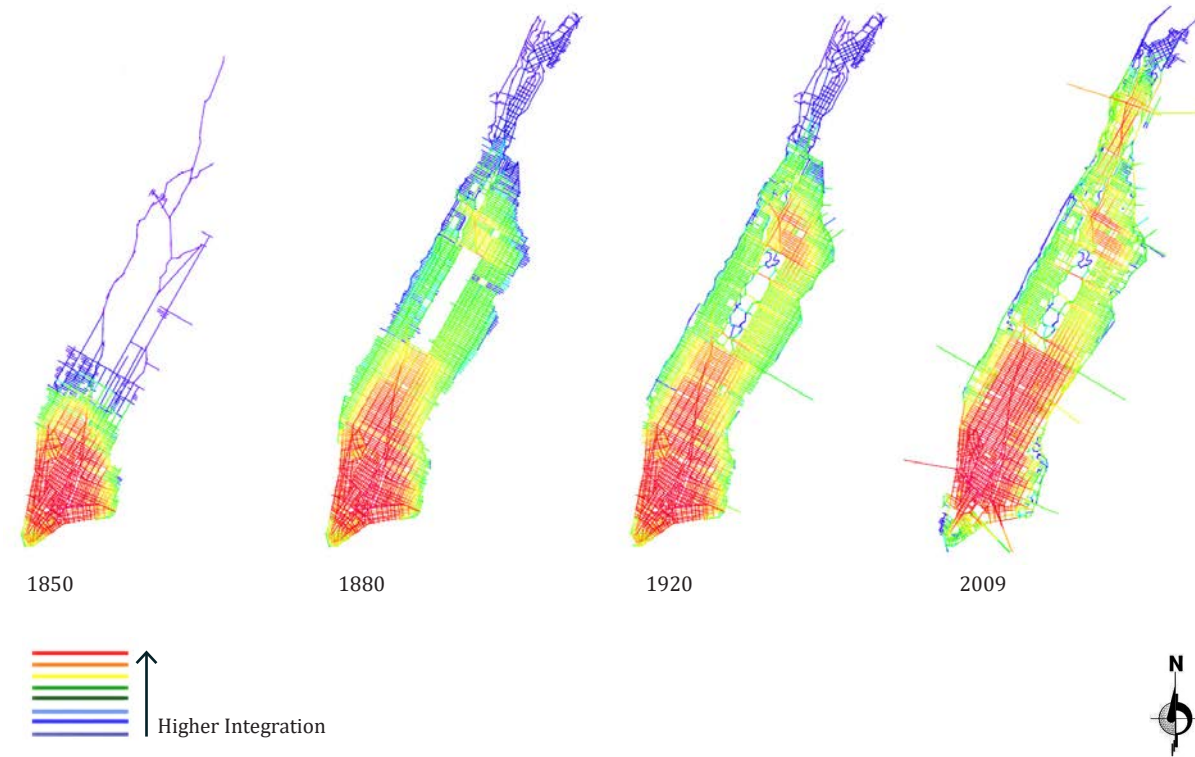
history of spatial growth. Alike Manhattan the first one is the growing product of a bottom-up spatial growth which is well-known as the organic grid of the old city. The second growth phase has been also initiated by imposing a uniform grid in a top-down planning concept laid down in 1859. The construction of this uniform grid called the "Eixample" has taken place around the year 1891. The current spatial structure of Barcelona is an outcome of the linking between the old city, and the pre-planned uniform grid.⁵⁶

Moreover, like Manhattan, the importance and impact of certain elements can be demonstrated in the urban structure of Barcelona. Avenida Diagonal as the unique diagonal element and also Cuitadella Park and Olympic hill (Montjuic) are certain elements because they are playing a significant role in the urban development and structure of Barcelona City that will be analyzed in the next section of the current thesis.

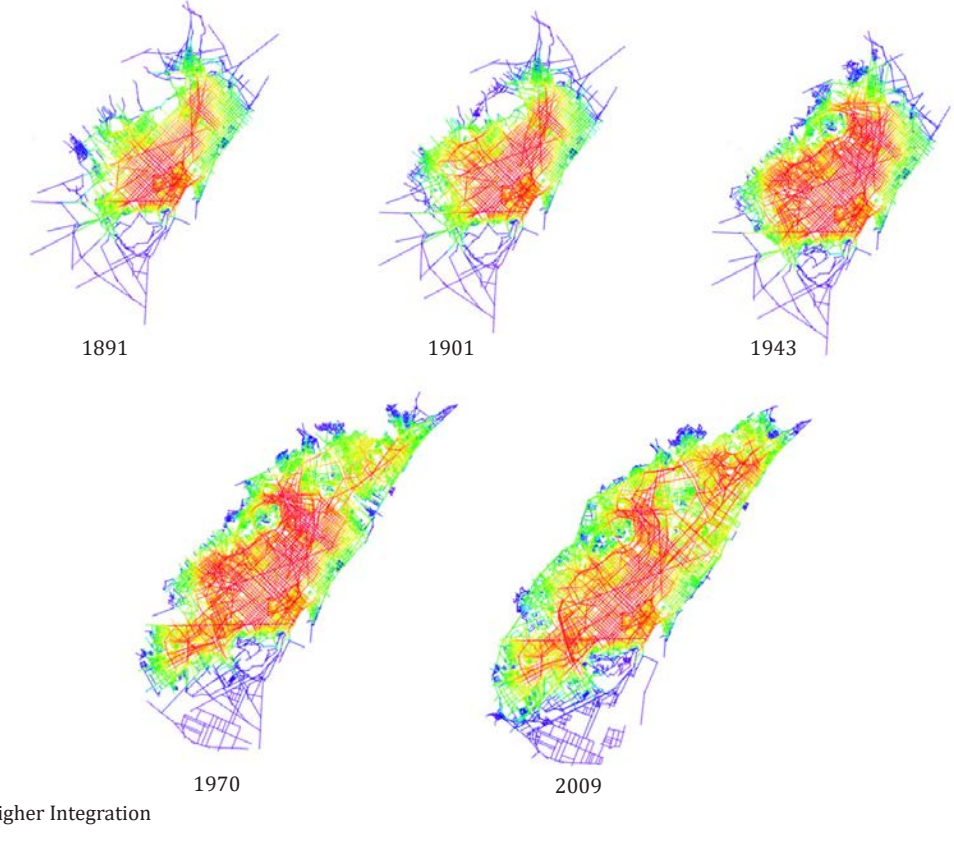
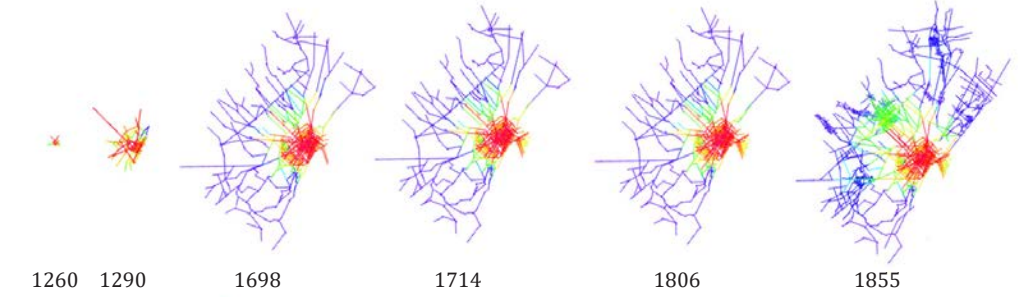
Some comparable features can be identified not only in the historical growth pattern of Barcelona and Manhattan but also in the spatial configurations of their growth and current state. Eixos which is a Catalan company specialized in retail mapping has recently published a report on Manhattan and Barcelona. According to Eixos research and report, both municipalities of Manhattan and Barcelona share a standard grid model for commercial space and have almost the same population. One of the interesting points which observed from comparing Manhattan and Barcelona is that both are following the polycentric business model.⁵⁷

56 K. A. Sayed, A. Turner, S. Hanna. "Cities as Emergent Models: The Morphological Logic of Manhattan and Barcelona". Edited by D. Koch, L. Marcus, and J. Steen. Proceedings of the 7th International Space Syntax Symposium. Stockholm, KTH. 2009.

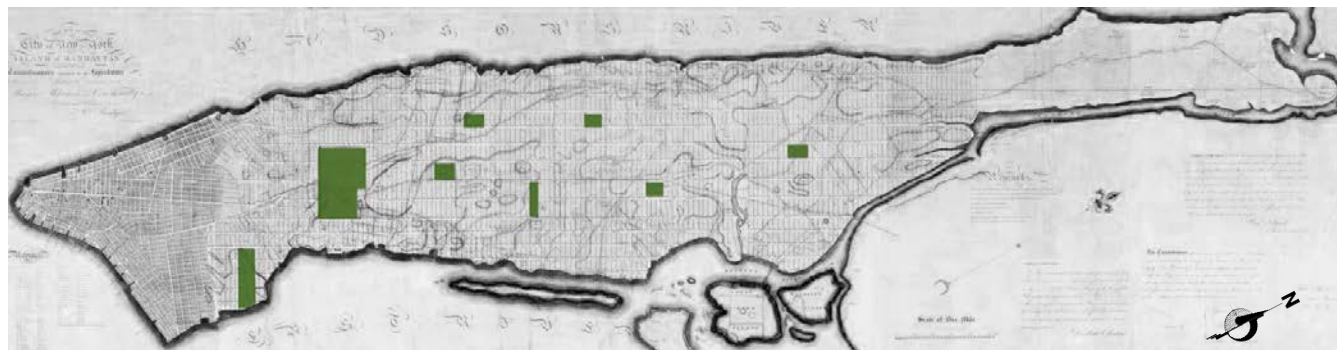
57 IOT Times. Cities of the Future. To map the city's retail health, you need to walk the streets. [Online]. Catalunya. March 2020. [Accessed: April 2020]. Available at: <<https://citiesofthefuture.eu/to-map-the-citys-retail-health-you-need-to-walk-the-streets/>>.



Drawing No. 10: The Evolution of Manhattan Grid from the First Settlement in 1642 to the Recent State of the Island in 2009 With the Integration rate of the Organic Grid to the Uniform Grid, By KTH University, Stockholm, 2009



Drawing No. 11: The Evolution of Barcelona Grid from the First Settlement 1260 to the Recent State of the Island in 2009 With the Integration Rate of the Organic Grid to the Uniform Grid, By KTH University, Stockholm, 2009



Drawing No. 12: Green Areas of Manhattan Master Plan, 1811, Online New York City Museum, By Author, 2020, SC 1:117000



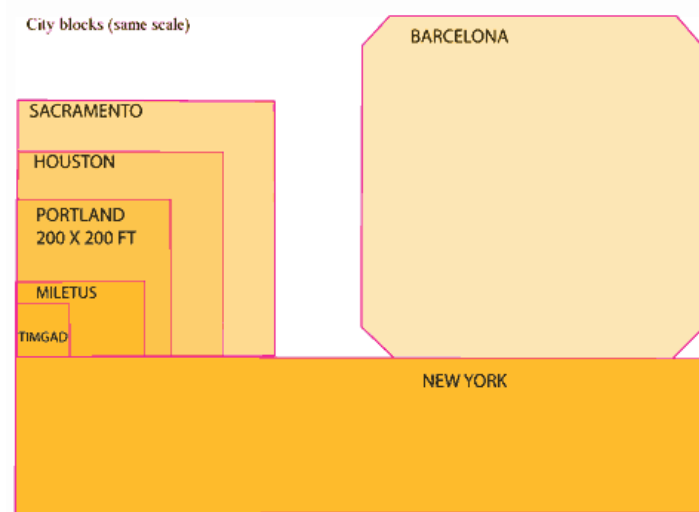
Drawing No. 14: Green Areas in the 1884 Plan of Manhattan, By Author, 2020, SC 1:117000



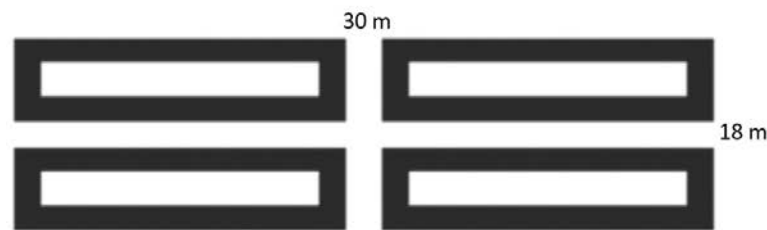
Drawing No. 13: Green Areas of Barcelona Master Plan, 1859, Ajuntament de Barcelona, By Author, 2020, SC 1:117000



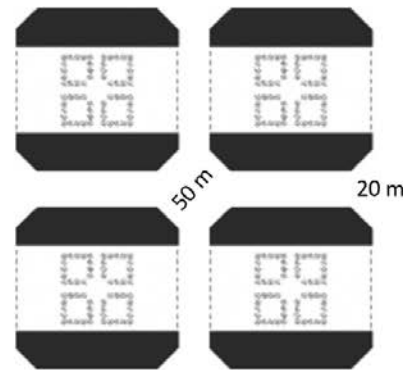
Drawing No. 15: Green Areas in the 1891 Plan of Barcelona, By Author, 2020, SC 1:117000



Drawing No. 16: From Miletus (473 BC) to Barcelona (1859) and Portland (1867), the grid has resurfaced in many alternative sizes of square blocks and variations of elongated rectangles (NY 1811)



4 Blocks of Randel's Plan, Manhattan, 1811



4 Blocks of Cerdà's Plan, Barcelona, 1859

Drawing No. 17: Dimensional and Morphological Comparison of the Block of Randel's Plan for Manhattan Island in 1811 and Plan of Cerdà for Barcelona in 1859

Generally, Manhattan and Barcelona are sharing similar growth patterns summarised by the bottom-up organic growth and the top-down planning decisions, which resulted in adding a uniform grid on the areas neighboring to the old organic structures.

The comparison between Manhattan and Barcelona in the field of parks also demonstrates that both are also following almost the same model. Manhattan contains a huge urban green area as Central Park with many small parks while Barcelona was also aiming to have many small parks in the map of Cerdà that unfortunately not all of them are built.

Also, the Manhattan block is following the dimension of 60*190 –280 m with the Avenues of 30.5m wide and Streets of 18m wide. The Plan of Randel did not in any way specify what the size of individual lots within the blocks should be, although the height was not defined. But around 1820 the height built was going from 2 to 4 floors.

However, Barcelona block is following the dimension of 113*113 m with the Avenues of 50m wide and Streets from 20-30 m wide. The plan of Cerdà established a maximum building height of 16 meters and attributed a key role to parks and gardens within the blocks.

Cerdà was able to foresee the future of transportation systems and plan accordingly. Under the concepts of equity and health, he also gave way to high quality and enhanced lighting of the private and public spaces.

Apart from the Barcelona area (102km²) which is about 1.73 times as big as Manhattan (59km²), there is a big and important difference in the gridiron layout of both cities excluding their size, as corners. According to the text by Manuel Sola Morales in an exhibition

called “Cities, Corners” in 2004, The intersection of people, constructions, movements, and energies is the reason and strength of the city. The corners are the original model and express the nature of the city as a place of meeting, overlap, and conflict. Cities are made of the multiplication of corners, and as a whole, of crossroads grids.

Also, Manuel Sola Morales expressed that “In any urban form, the way the streets intersect is the fundamental feature, which we keep as an image of the city. The urban fabric is usually a flexible and dynamic organization of space so that activities and people can intersect.”⁵⁸

The importance of the streets’ intersection in this thesis is demonstrated by using the Nolli map as a method. There is a specific language in all the cities that are spoken in terms of patterns to organize the places. A Nolli map is a tool that will reveal the pattern and make clear what is missed. Drawing No. 19 on page 110-111 is a small cut of the Barcelona and Manhattan gridiron which are near to the study area and contain important passways. These small cuts of the two gridiron layout demonstrate the differences between the blocks at the same scale in Manhattan and Barcelona such as density, green areas, and public space.

According to Manuel Sola Morales a view from the sky, all the cities are a network of blocks of houses and more or less irregular streets. But from the ground, they are sequences of crossings and corners, significant points, and symbols of the variety and extension of the city. Italo Calvino had also written that cities do not tell their past, but contain it, like the lines of the hand, on the corners of the streets. Therefore, the most characteristic

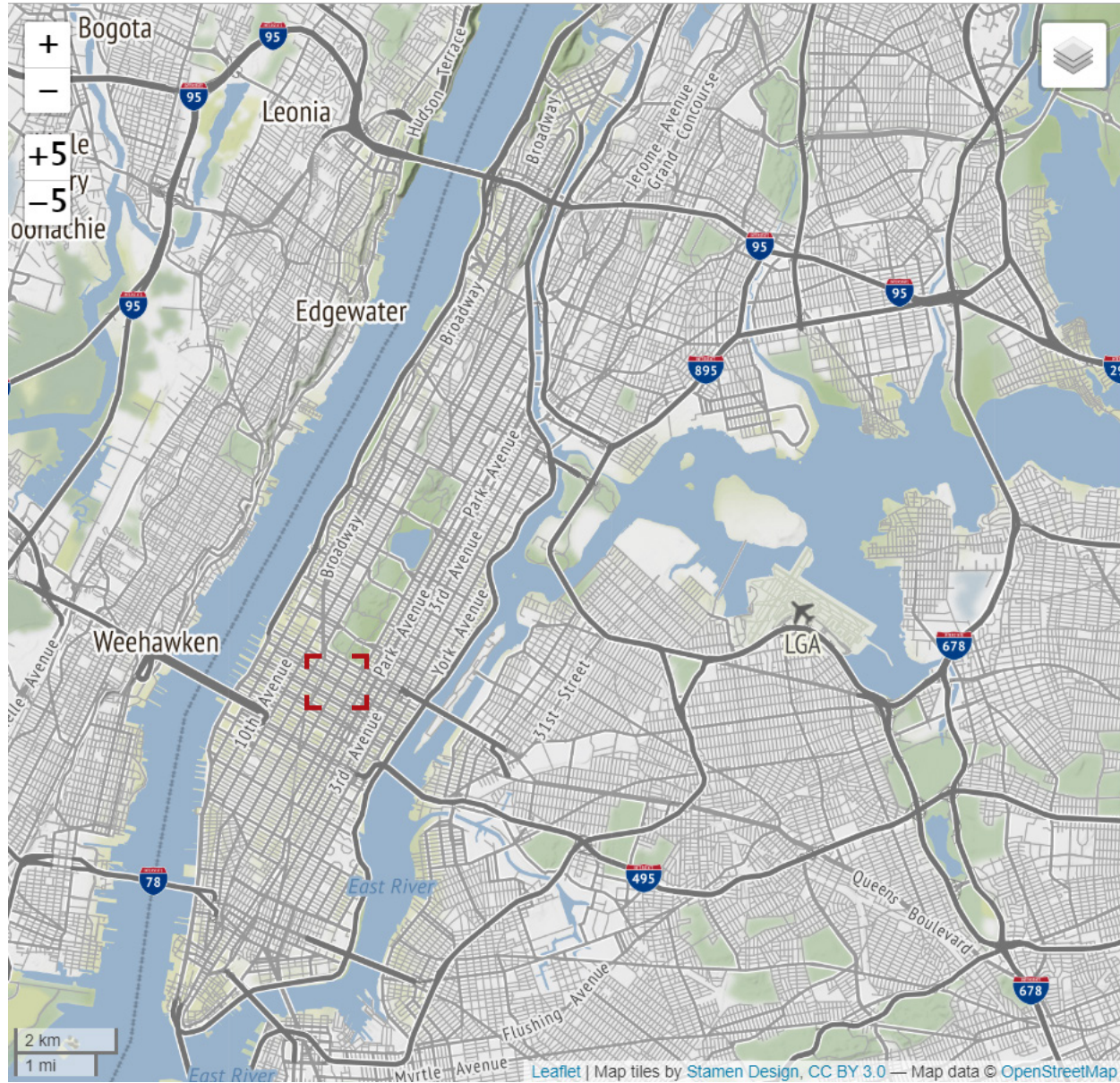
58 M. Solà-Morales. Ciutats, cantonades / villes, carrefours. Ciutats i cantonades urbanes. Fòrum Barcelona. 2004, P. 131-134.

and unique image of routes of the Eixample of Barcelona belongs to the space of the four chamfers of 45 degrees designed by Ildefons Cerdà in which the prominence of the turns, the definite presence of shops and balconies on the 20m oblique façade, form an urban plot marked by the repeated rhythm of the rhomboidal chamfers. Italo Calvino had also written that cities do not tell their past, but contain it, like the lines of the hand, on the corners of the streets.⁵⁹

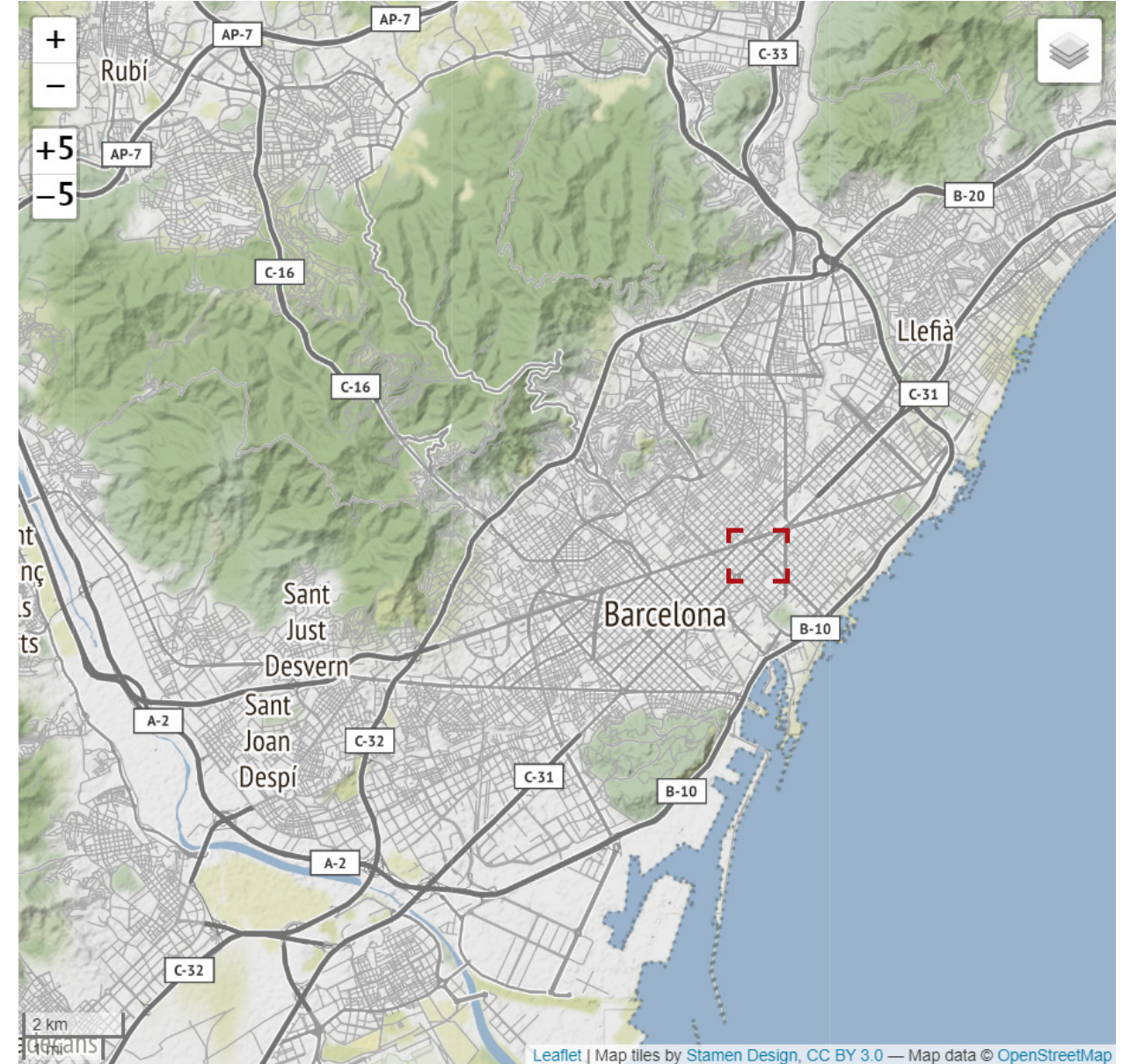
A comparison between the two cuts of the city shows clearly that Cerdà has made a city of corners while Randel went differently and focused more on the density of the blocks. As a result, Manhattan is following a pattern with a higher density in blocks than in Barcelona which results in having less unroofed public spaces in the city. But in both cities, the division of the buildings within the blocks was following almost the same pattern in the height of the buildings' maximum of 12-16m. Currently, Manhattan is exceeding the maximum height and many skyscrapers are visible mostly at the heart of the gridiron near the southern part of Central Park. It has been discussed that may affect the sublime, romantic style, and many unique features of Central Park in the future and as a whole threatens to devastate the fabric of the city.

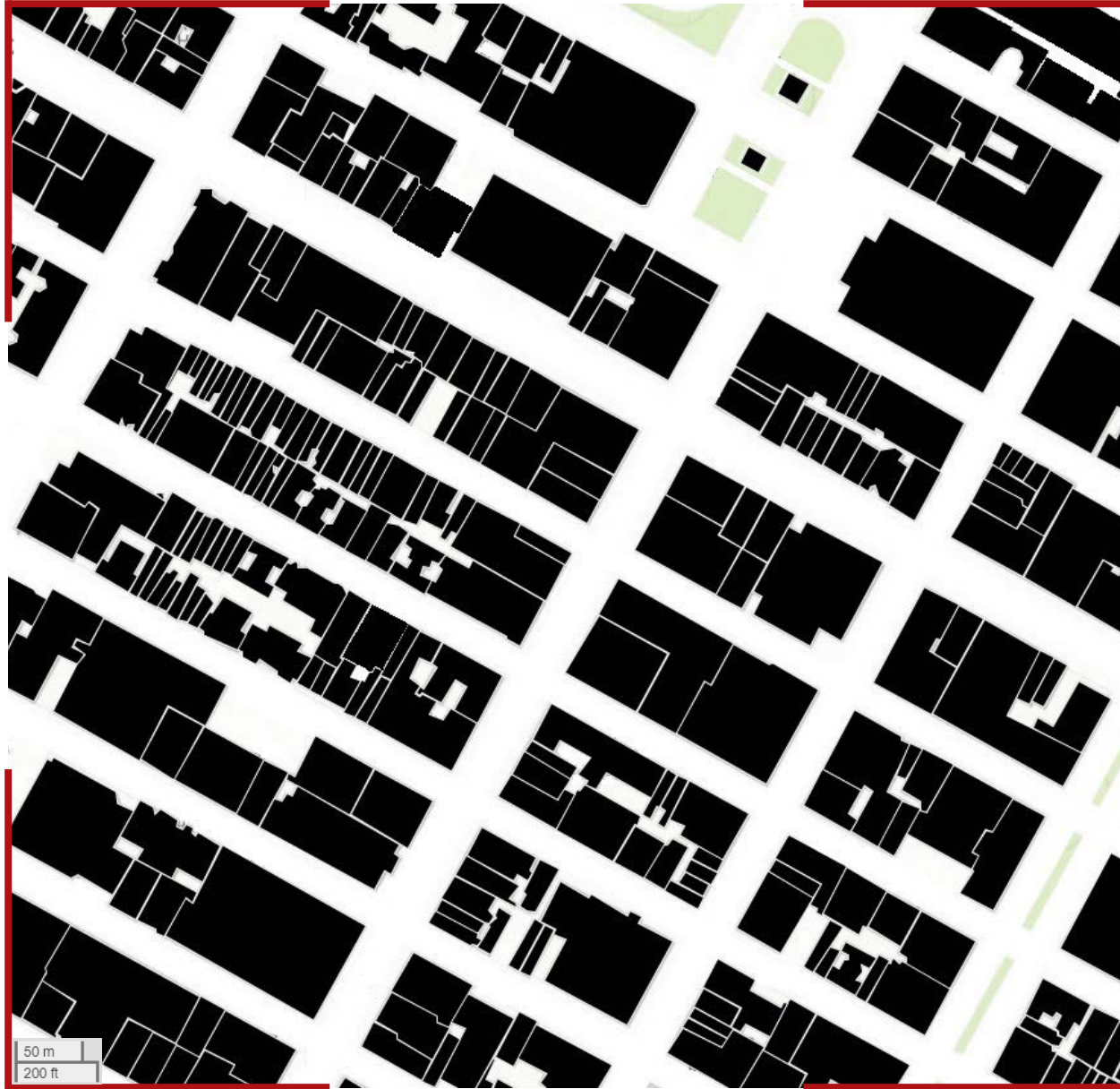
Reviewing the dimension of block and routes in both cities shows also another important difference between the gridiron layout of them which belongs to the sense of direction. Drawing No. 17 and 19 shows clearly the relation and distance between blocks in Manhattan and Barcelona. Manhattan is following a directional gridiron layout firstly because of the

59 M. Solà-Morales. Ciutats, cantonades / villes, carrefours. Ciutats i cantonades urbanes. Fòrum Barcelona. 2004, P. 131-134.



Drawing No. 18: Real Morphology of Randel's Plan Vs Plan of Cerdà, By Stamen Design, 2020





Drawing No. 19: Nolli Map of Randel's Plan Vs Plan of Cerdà, By Author, 2020



rectangular shape of the block and secondly due to the width difference between vertical and horizontal passways. Vertical or North-South routes of 30.5m wide called Avenues and horizontal or East-West Streets of 18m wide called Streets, along with the shape of the blocks are creating a sense of direction in the city. But in Barcelona is different and the almost square shape of the block along with vertical and horizontal routes with the same wide of 20-30m called street are creating an isotropic gridiron layout that results in losing the sense of direction in the city.

This thesis is going to move forward to the greenery system of both cities in consideration of their gridiron urban layout differences and similarities. Even though not all the parks in the map of Cerdà are built but new models of parks and urban greenery have been placed on the current map of the city that some are occupying almost the same area as Central Park like Parc del Camí Comtal.⁶⁰

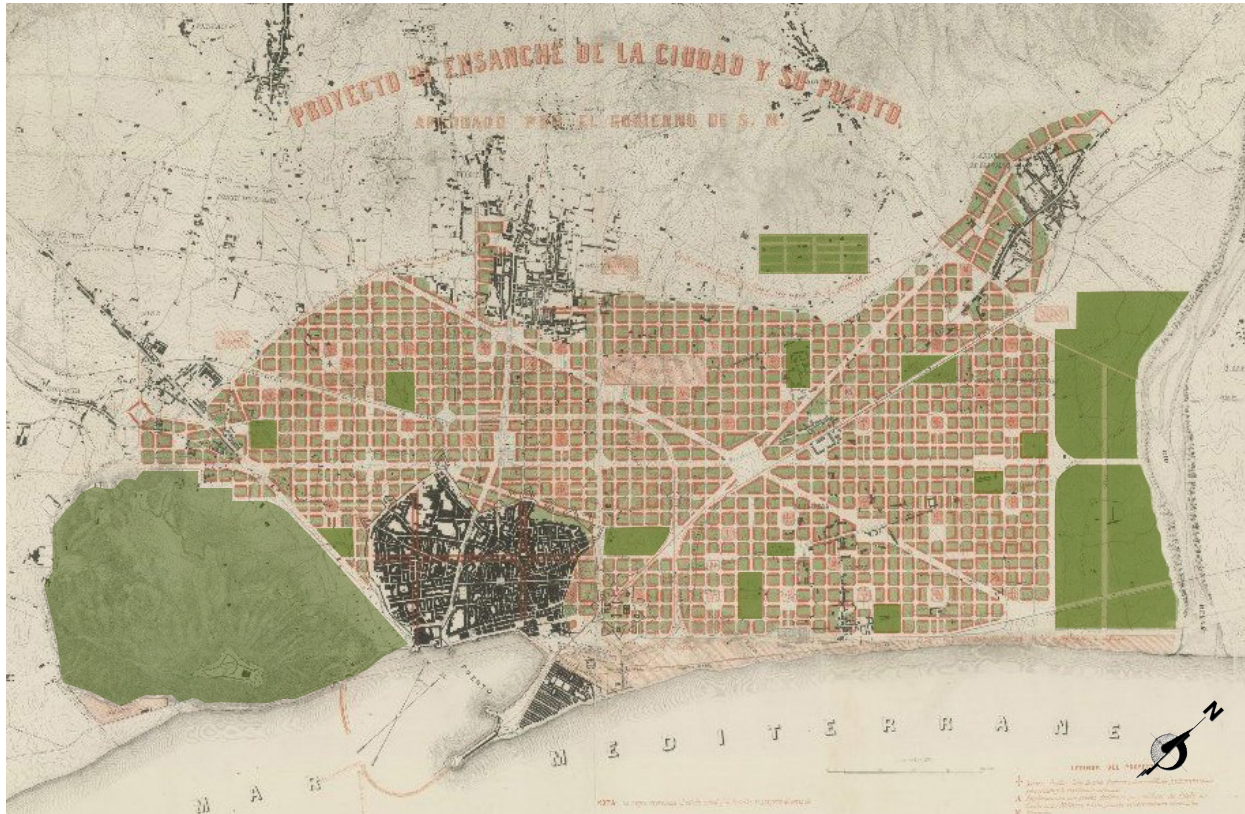
According to the pieces of information that come out from the selected part of grids in Drawing No.19, using google earth in the case of Manhattan, and walking around in Barcelona, one important aspect about the greenery system can be realized. Barcelona apart from its total number of parks which is about 750 parks, is also presenting a higher dense greenery system with a row of trees and shrubs in the urban paths. However, trees and shrubs in the urban paths of Manhattan are following a limitation or somehow missed and they are mostly available just in 287 parks of the city.⁶¹

60 Chapter Three of this thesis will present Parc del Camí Comtal in Barcelona which is occupying almost the same area as Central Park but with a different form.

61 Parks in this paragraph refer to all types of public green areas in the city as historic parks, green parks, thematic parks, forest parks, children's playgrounds, skating rinks, dog runs and block interiors.

In summary, Manhattan is a city with a dense gridiron layout of buildings and a very huge park in its heart and many small parks around which are integrated into the city but with no connection to each other. However, Barcelona is following to have a dense greenery system that is trying to create a connection between many parks that are/will be placed on the current gridiron layout of the city and integrated into it.

Therefore, as Cerdà wished for a garden city in his plan, seems that Barcelona is following a new system and model of urban greenery which is unique. This new model turns Barcelona city into an outstanding complex of green cores. It forms the contemporary model of future Urban Park which is fresh and accommodates the residents' desires for green areas in the metropolises and big cities.



Drawing No. 20: Cerdà's Original Eixample Master Plan for Barcelona Metropolis (1859), Ajuntament de Barcelona, 2019

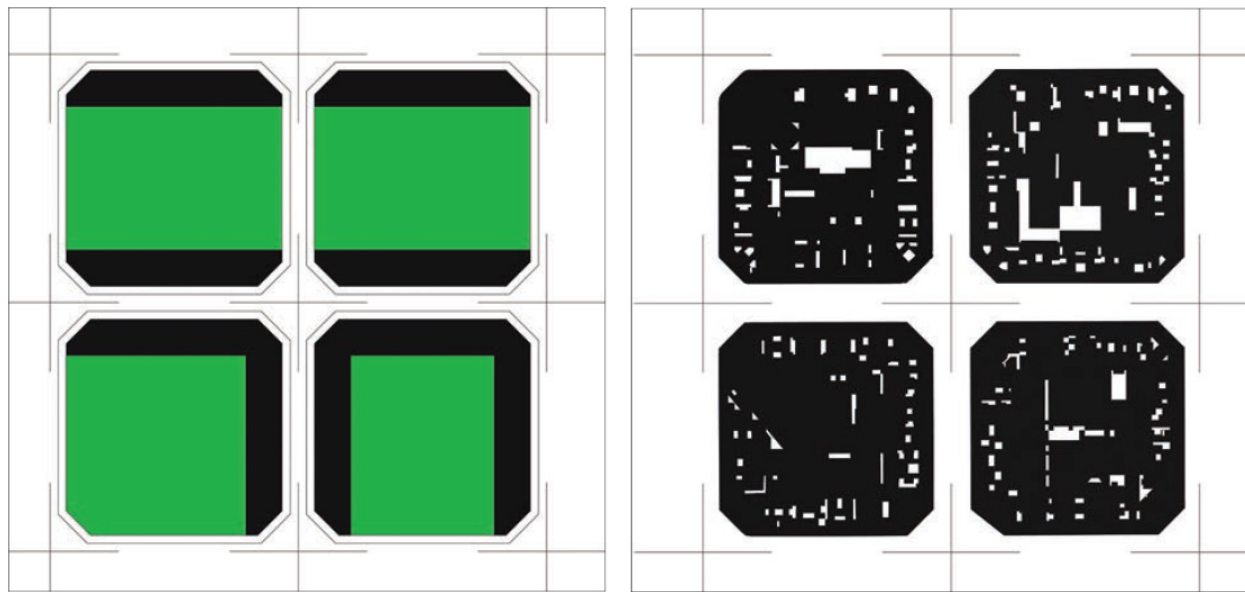
- **GREEN CORE'S EVOLUTION OF BARCELONA METROPOLIS**

Modern city planning started with the industrial revolution and the scientific developments of the 19th century. At that time, a Catalan engineer Ildefonso Cerdà Suñer created the urbanism word as a new and critical science to deal with cities with three key elements as sanitation, traffic, and equality. In 1854 a topographic plan of Barcelona commissioned to Ildefons Cerdà who had been studying transportation problems in Barcelona since 1849. In 1859 Barcelona's City Council announced a competition and asked Cerdà to submit his work. The competition was won by Architect Antoni Rovira I Trias but was rejected by the Central Government of Madrid in 1860 and the plan of Cerdà had been chosen as the winner.

One of the important aspects of the Cerdà Plan for Barcelona was that he had the ambitions of preparing the city for the future centuries. Therefore, he designed a regular orthogonal grid that improves mobility and provides the chance for creating small plazas for different activities. Designing the grids at the time that horses and carriages were the only way of transportation and the train was a remarkable invention, is another reason that clarifies Cerdà was not just looking at the present and he wished for a city of the future generations.⁶²

Nature was critical for Cerdà in a way that his ideal city was in a sense of a garden city that provides better living conditions. He designed in a way that the footprints of the buildings sited a guarantee for the public green space in all city blocks of his plan. Also, he planned a large public park in the Besòs river area as the lungs of the city that unfortunately the public park had never been built and also the concept of the building blocks left.

⁶² J. Urbano. "The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning". Focus. 2016, Vol.12(1).



Drawing No. 21: Left: The Blocks Proposed by Cerdà included Peripheral Buildings and Public Green Spaces, Right: Transformation Over Time due to Speculation and Privatization

The current drawing shows perfectly how much green spaces were important for Cerdà that unfortunately did not happen.⁶³

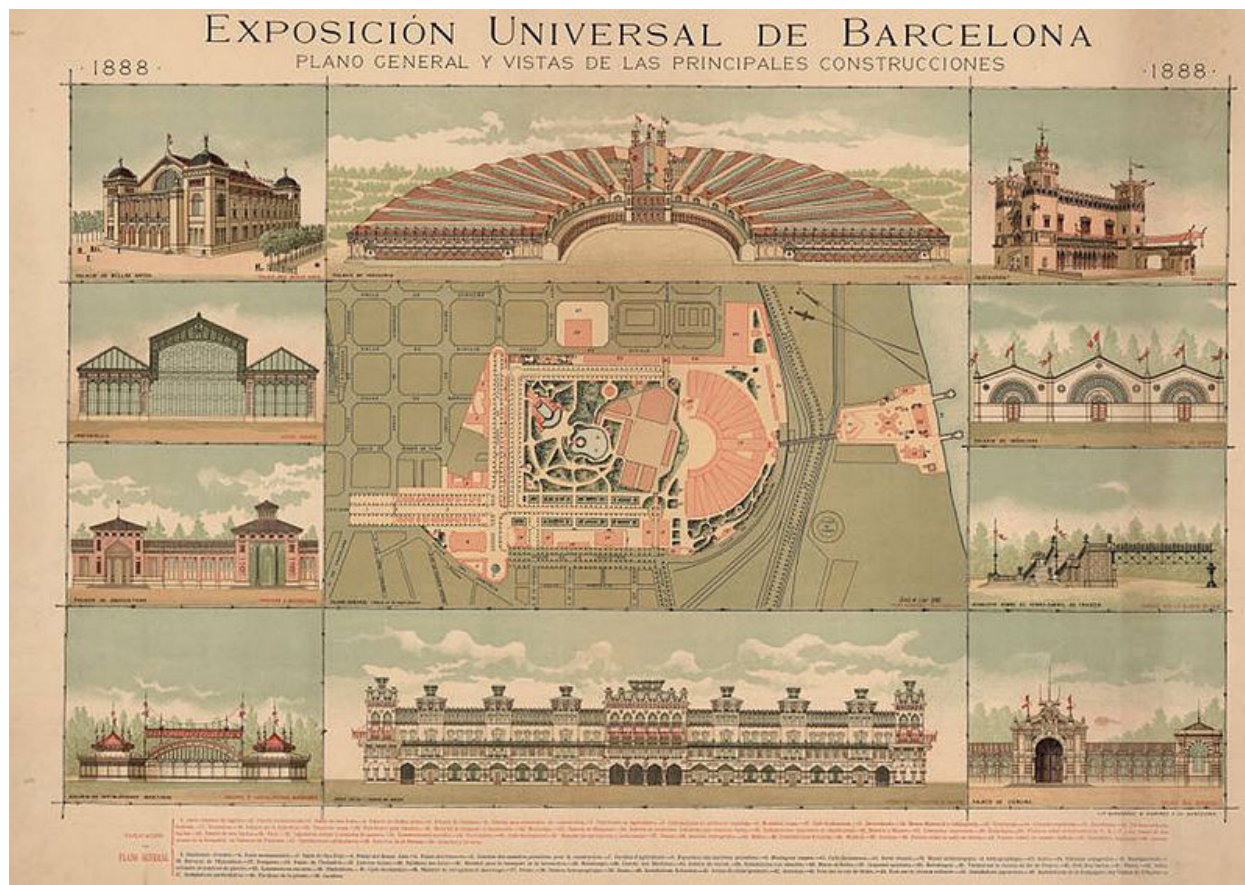
This thesis divided the urban renewal of Barcelona into the three major periods that had/ have the most notable improvements in different fields like transportation, sanitary, greenery, pedestrianization, and like, that generally improve the quality of inhabitants' life. These three major periods are listed below as:

- Urban Renewal for Universal exhibitions, Barcelona 1888-1929;
- Urban Renewal for the Olympic Games, Barcelona, 1992;
- Urban Renewal for a New Green Core and City Center, Barcelona, 2011-Present;

Each period contains some aspects of urban renewal which affects the city notably and made Barcelona nearer to reach the characteristics of a modern metropolis.

⁶³ J. R. Resina. Iberian Cities. Routledge, New York, and London. 2011, Vol. 24, 247 P, ISBN 0-8153-3485-0.

J. Urbano. “The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning”. Focus. 2016, Vol.12(1).



Drawing No. 22: Barcelona Universal Exposition (1888), Ajuntament de Barcelona, 2019

- **URBAN RENEWAL FOR UNIVERSAL EXHIBITIONS, BARCELONA, 1888-1929**

Barcelona has developed into the main important city for the development of business throughout the history in Catalonia, Spain, and even the whole of southern Europe and the Mediterranean. These developments took part from more than a hundred years ago, started from universal exhibitions in 1888, and continues until the present moment.⁶⁴

On May 20, 1888, Barcelona hosted a Universal Exhibition with marvelous inventions and technological advances as well as interesting items from the foreign world and products of a successful industrial revolution. The site of the exhibition was to be the new Ciutadella Park that provided 270 acres of land resulting from the demolition of the huge military fortress attached to the city, which was torn down two decades later than the city walls. The Citadel had been built in 1714, and used since then by the Spanish army as a castle to control the city, rather than defend it, and was hated by Barcelonans. Holding the Exhibition over its trampled ruins was thus a certain restoration of the city's honor, a symbol of freedom from repression, a triumph of progress over the Ancienne Regime, and again as some sort of Catalan Rebirth.⁶⁵

The park was designed by Josep Fontseré, who followed Olmsted's Central Park philosophy as "Gardens are to the city what lungs are to a man". He used Olmsted's philosophy to create a park that connected the old city to the new industrial areas to the north while still providing an atmosphere disconnected from the city. The plan was a large horse-shoe

⁶⁴ J. R. Resina. *Iberian Cities*. Routledge, New York, and London. 2011, Vol. 24, 247 P, ISBN 0-8153-3485-0.

⁶⁵ J. Urbano. "The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning". *Focus*. 2016, Vol.12(1).



Drawing No. 23: Plan of the Municipality of Barcelona (1891), Serra i Pujalt, Josep Maria, Ajuntament de Barcelona, 2019

shaped avenue that contained French garden style and also an English-style park. Fontseré tore down the whole Citadel and designed a new street to erase the memory of the hated fortress from the modern city map and only the old arsenal building was allowed to remain that is now Catalan Parliament. The surrounding streets and the central avenue leading to the park were also laid out so that Fontseré’s plan was rather more than a park and it was such modern urban planning. Also, Exhibition centers, pavilions, and vast exhibition halls comprised the spaces and made up the Exhibition’s urban network. Products from the powerful Catalan textile industry, inventions, and heavy machinery from all over the world and products related to the new electrical energy captivated visitors. The United States pavilion presented the country as the new emerging economy through the image of New York as a symbol of modernity.⁶⁶

On May 19, 1929, Barcelona City hosts its second international exhibition. Therefore, the City Council allocated Montjuïc mountain as the space to get prepared for the event which with its 110 hectares of land was large enough. This space was closely linked to the urban growth strategy that seeks to open up new urban centers and focal points in the city. The second universal exhibition in Barcelona redraws a model for the trade fairs of the twentieth century. On the other hand, together with the exhibition centers, many smaller-scale pavilions were also set up with freestyle in design and used by countries, institutions, and companies for communication. Other constructions were created for leisure and cultural activities such

⁶⁶ Fira Barcelona. “Fira de Barcelona General Archive: AGFB”. Dos Punts Documentació i Cultura SL. [Online]. Barcelona. [Accessed: November 2019]. Available at < https://media.firabcn.es/content/institucional/Guia%20General%20Archive_en.pdf>.

L. B. Pascual. Modernisme and the 1888 Universal Exposition of Barcelona. Institut de paisatge urbà i la qualitat de vida. Ajuntament de Barcelona. Historical lab 1 Bruxelles-Brussels. 22 October 2005-12-19.



Drawing No. 24: A look to the Site of the Barcelona International Exhibition (1929), Ajuntament de Barcelona Online Archive, 2019

as the Teatre Grec, the Magic Fountain, and Poble Espanyol. This international exhibition was with no doubt one of the impressive and effective events in Barcelona that shaped the landscape of the city and many iconic city landmarks had been attributed to it and attracted thousands of visitors each year. The exhibition was considered as a way of showcasing the technological advances of the city especially in the areas of technology, architecture, and art. There were officially three sections to the exhibition as Industry, Sports, and Art. According to a large number of new constructions that were essential for the exhibition the project was an opportunity for many engineers and architects to experiment with new styles and techniques. In terms of architecture, the movement known as noucentisme⁶⁷ was united as the developing replacement for the previously popular Catalan Modernism flourished by the likes Antoni Gaudí and Lluís Domenech I Montaner.⁶⁸

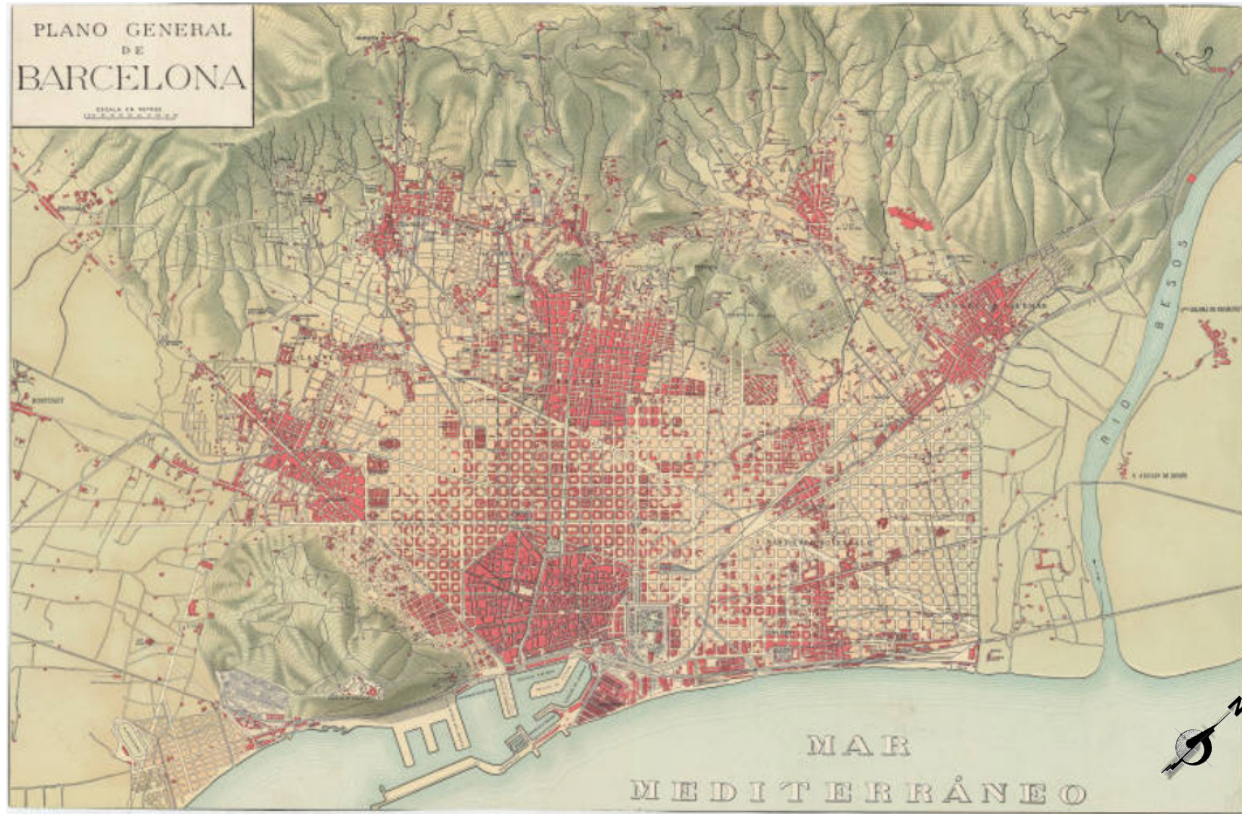
As mentioned before, many of the city's iconic landmarks had been built for and during the exhibition such as

- The Plaça d'Espanya which designed as the main point of communication between the city and the exhibition and completed in 1929;
- The Poble Espanyol that is an architectural museum which displays representations of the various architectural styles across Spain;

⁶⁷ Noucentisme was a Catalan cultural movement of the early 20th century that originated largely as a reaction against Modernisme, both in art and ideology, and was, simultaneously, a perception of art almost opposite to that of avantgardists.

⁶⁸ Fira Barcelona. "Fira de Barcelona General Archive: AGFB". Dos Punts Documentació i Cultura SL. [Online]. Barcelona. [Accessed: November 2019]. Available at < https://media.firabcn.es/content/institucional/Guia%20General%20Archive_en.pdf>.

A. G. Espuche, M. Guardia, F. J. Monclús, J. L. Oyón. "Modernization and urban beautification: The 1888 Barcelona world's fair". Planning Perspectives. 1991, Vol.6 No. 2, P. 139-159.



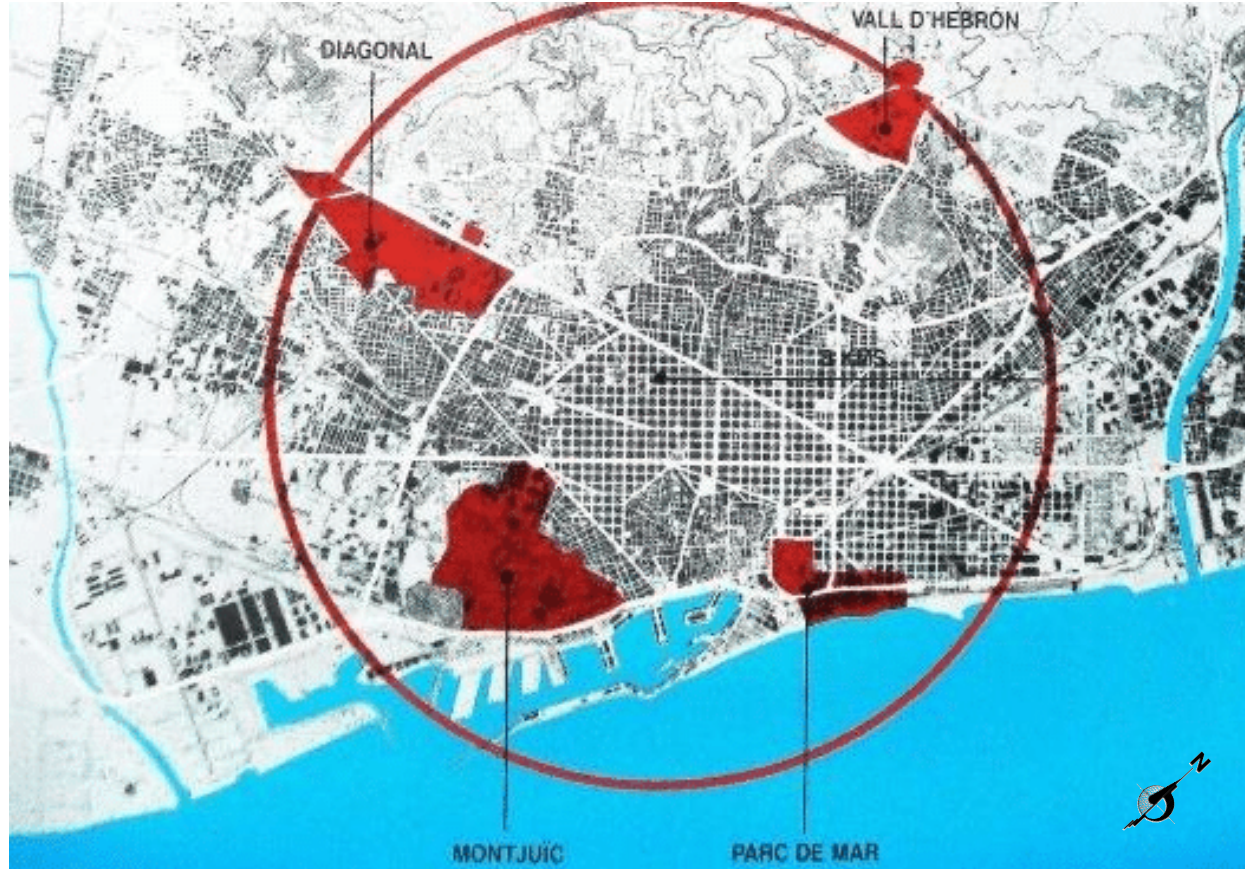
Drawing No. 25: General Map of Barcelona (1920), Institut Cartogràfic i Geològic de Catalunya, 2017

- The Palau Nacional or National Palace that nowadays is home to the National Museum of Catalan Art (MNAC) and was the main site of the exhibition, the spectacular;
- The fountain called The Magic Fountain that displays shows of light and music for the enjoyment of visitors;
- The Montjuïc Telèferic and Port Vell Aerial Cable Car that was designed as part of the infrastructural improvements project that planned for the exhibition, however, the cable car was not finished until 1931;
- The Grec Theatre as an open-air amphitheater which had been built in the Ancient Greek theatres' style and is still used as a concert hall and stage;
- The Montjuïc Stadium which is today known as the Olympic Stadium Lluís Companys and designed in time for the exhibition. It was also part of the city's proposal for the 1936 Olympic games which were eventually awarded to Berlin.⁶⁹

The transformation of the city was not just in terms of architecture and urban landscaping but it also includes communication, transportation, and public sanitation. Many of the city's main axes of transport were improved and expanded. Also, many systems operated through steam, gas, or coal were replaced with electricity, such as public lighting and the tram system.⁷⁰

⁶⁹ A. G. Espuche, M. Guardia, F. J. Monclús, J. L. Oyón. "Modernization and urban beautification: The 1888 Barcelona world's fair". *Planning Perspectives*. 1991, Vol.6 No. 2, P. 139-159.

⁷⁰ Fira Barcelona. "Fira de Barcelona General Archive: AGFB". Dos Punts Documentació i Cultura SL. [Online]. Barcelona. [Accessed: November 2019]. Available at < https://media.firabcn.es/content/institucional/Guia%20General%20Archive_en.pdf>.



Drawing No. 26: Olympic Clusters Defined for Barcelona 1992 Olympic Games, By G. Silvestre, 2020

- **URBAN RENEWAL FOR THE OLYMPIC GAMES, BARCELONA, 1992**

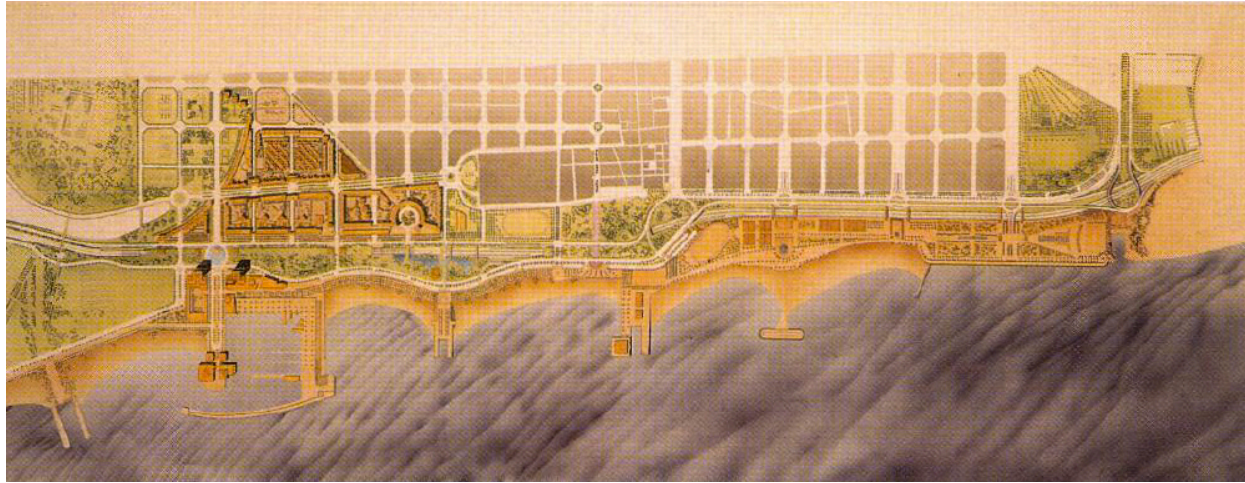
Actually, at the end of the Franco regime and the introduction of democracy the need to answer the problems created by the lack of urban planning policy became vital. Unfortunately in the case of Barcelona City, lack of urban planning policy caused urban sprawl and shortage of land for infrastructure and leisure activities in the city. Therefore, in 1980, a program for constructing public spaces was launched and the possibility of holding on the Olympic Games in Barcelona was raised. Finally, in 1981 Barcelona had been chosen as the site for the 1992 Olympic Games.⁷¹

Four areas had been chosen inside the municipality of Barcelona to allocate the four Olympic areas with the concept of games were to be the games of the city and inside the city. These four areas as shown in the current drawing was Montjuïc, where the stadium, the sports palace, and the swimming facilities were allocated, Diagonal, Vall d'Hebron, and Poble Nou-Olympic Village. All these allocations had features in common as they were in boundaries between the relatively well ordinated 19th-century city and peripheral areas of the 1960 and 1970. On the other hand, Poblenou, where the Olympic Village was to be located, was an old industrial area. It appeared in the 19th century and concentrating industrial sites and working-class housing. Thus it was one of the centers of the industrial revolution in Spain.⁷²

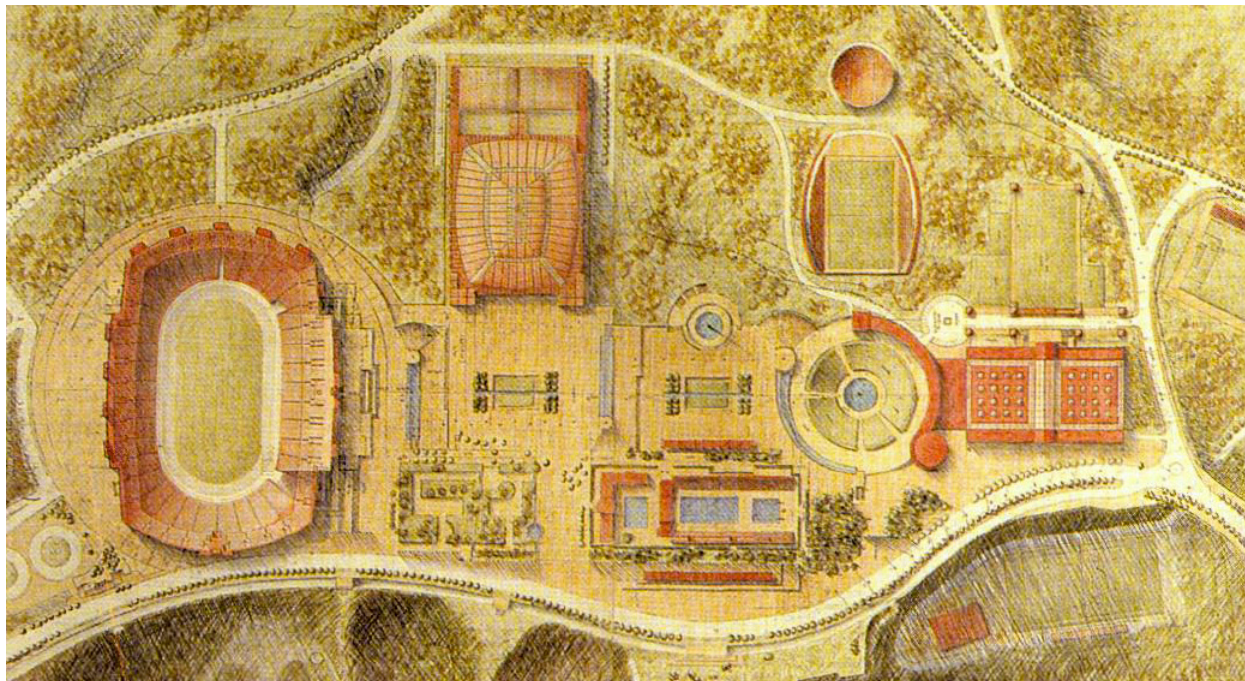
The Olympic Games had an impressive effect on Barcelona city and made a remarkable

⁷¹ J. A. Acebillo. "Barcelona: Toward a New Urban Planning Approach". SPATIUM, 1980-2006.

⁷² O. Nel-lo. "The Olympic Games as a tool for urban renewal: the experience of Barcelona'92 Olympic Village". [Online]. Barcelona: Centre d'Estudis Olímpics UAB. 1997. [Accessed: 2019]. Available at <http://olympicstudies.uab.es/pdf/wp090_eng.pdf>.



Drawing No. 27: Renovation of the Seafront for Olympic Games (1987), By Futurecapetown, 2010



Drawing No. 28: Definition of the City Center in Diagonal for Olympic Games (1992), By Futurecapetown, 2010

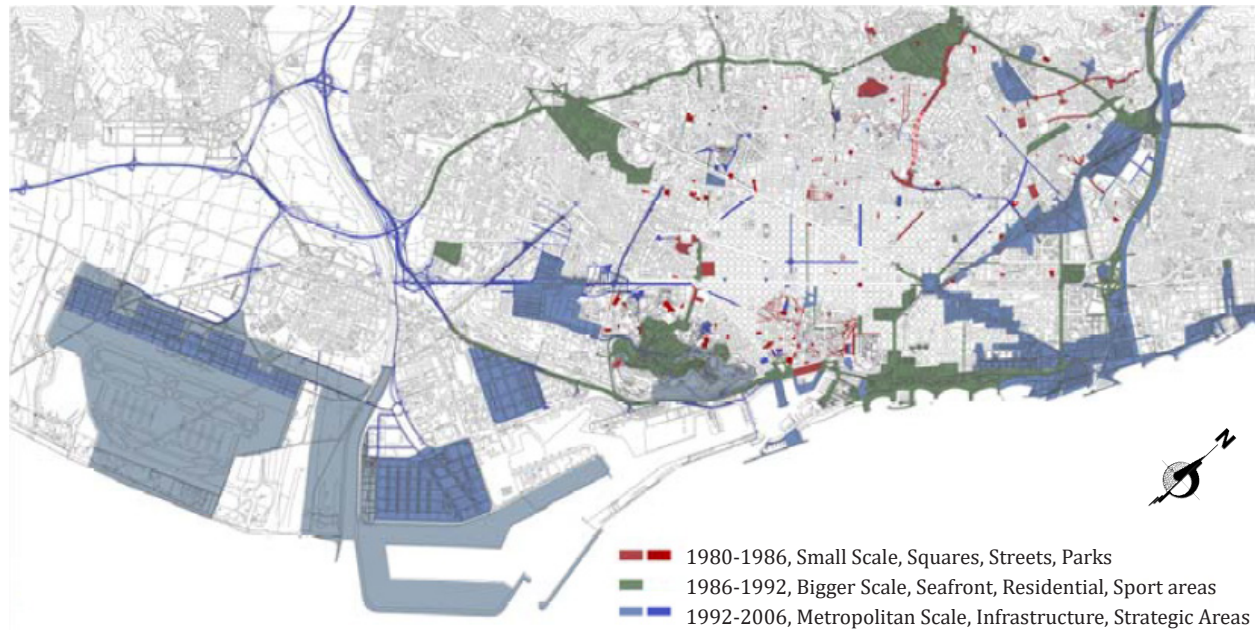
jump for it to be a center of a Euroregion of 15 million inhabitants. It also aspires to be the gateway to Southern Europe. Besides, one of the European cultural capital by reconstruction and remodeling urban public space, the creation of cleansed post-industrial beaches of the new seafront, and involvement of new projects designed by international architects like Norman Foster, Richard Meier, Arata Izosaki and Santiago Calatrava.⁷³

Having a new seafront was the first step of the renovation of the central part of Barcelona that happened in 1987. It was the start of an extensive redevelopment of the old port of Barcelona to turn it into a recreational and sporting area. This process of renewing the city's seafront was completed by improvements to the district of Barceloneta and the adaptation of the old industrial and warehousing zone of Poblenou into a residential area. The Parc de Mar Area that was the proposed location of the Olympic Village for the games also was undergoing a process of de-industrialization because beaches were in extremely degraded state and railway lines separated the district from the sea. Therefore, the redevelopment of the area was necessary and changed their look. The development of the seafront and Olympic Village had to be in a way that after the games become a normal area of the city which is perfectly integrated into and with the urban fabric. Therefore it followed the 19th-century grid ideated by Ildefons Cerdà to continue the urban pattern, street, squares, and blocks.⁷⁴

⁷³ İ. A. Süre. Public Space in the Image of Barcelona in Post-Dictatorship Period. International Journal of Social Science and Humanity. 2016, Vol. 6, No. 6, P. 446-450.

⁷⁴ O. Nel-lo. "The Olympic Games as a tool for urban renewal: the experience of Barcelona'92 Olympic Village". [Online]. Barcelona: Centre d'Estudis Olímpics UAB. 1997. [Accessed: 2019]. Available at <http://olympicstudies.uab.es/pdf/wp090_eng.pdf>.

İ. A. Süre. Public Space in the Image of Barcelona in Post-Dictatorship Period. International Journal of Social Science and Humanity. 2016, Vol. 6, No. 6, P. 446-450.



Drawing No. 29: Development of Barcelona City During 1980-2006, By J. Acebio, 2009

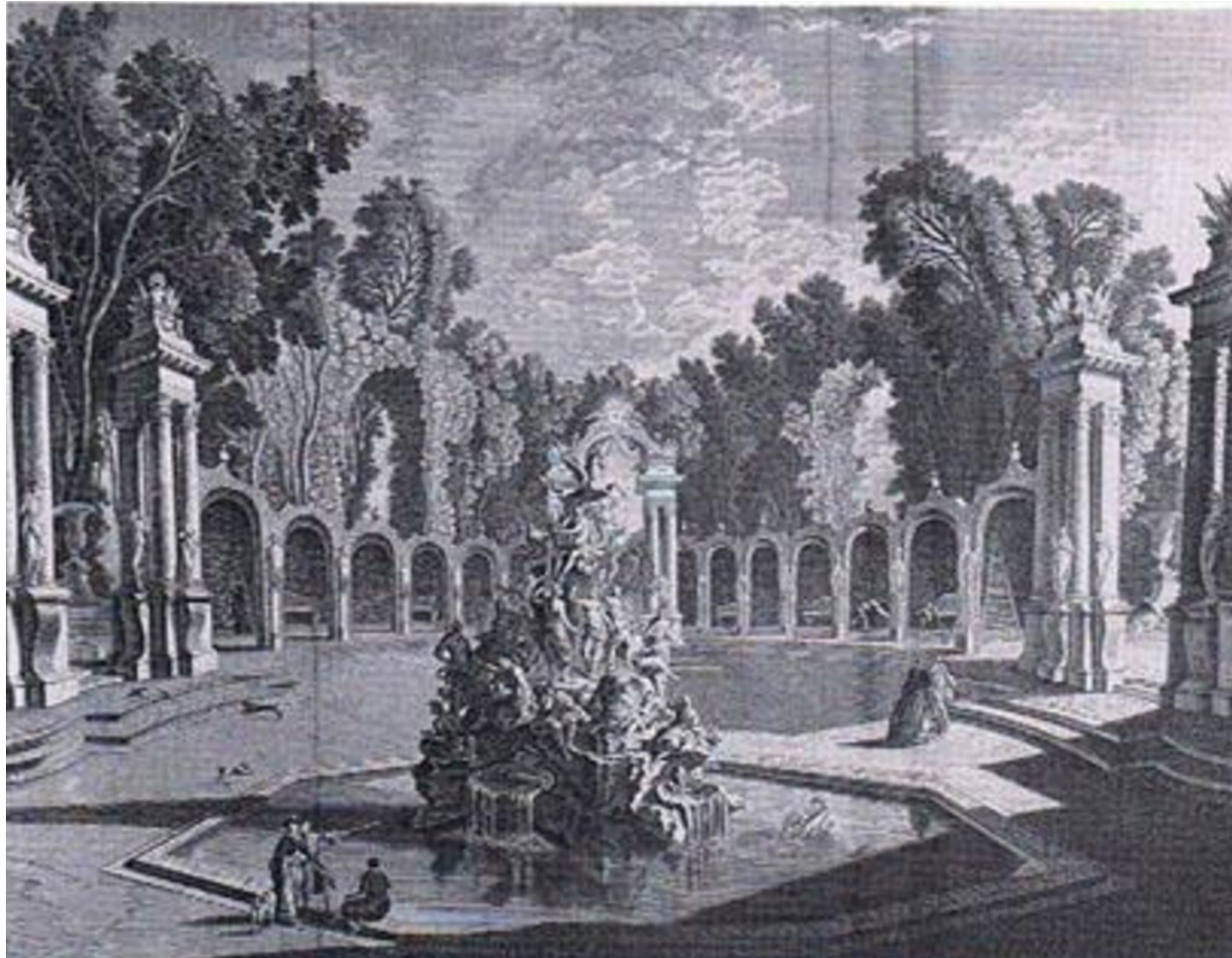
One of the important improvements in the Barcelona city for the Olympic Games held in 1988 when the construction of the ring roads was speeded up. It was followed by the requirements of the 1976 General Metropolitan Plan but abandoned the concept of urban motorways and adopted when some sections were to be constructed during the 1970s. The new ring roads were designed to facilitate entry and exit to and from the city and improve the connections between the main road network and the various areas of Barcelona. It would also be a fundamental element in connecting the different four areas of the Olympic Games because they were not located at the center of the city. On the other hand, a change for the orientation and development of the urban growth happened with projects for the road infrastructure in the Plaça de Les Glòries. It paved ways for future development toward the North-East, while traditionally it had always been towards the west.⁷⁵

Over time the facilitated district of Barcelona has shifted from the Ciutat Vella to the Eixample and more recently to the upper part of the Diagonal. Therefore, the large scale projects for 1992 have been concentrated in the peripheral and relatively inactive areas of the city. It provides counteracting the tendency for the activities to concentrate in the southwest of the city, starting from the Diagonal.

Over a decade a long-term vision for Barcelona was delivered brick by brick and day by day. The Olympic Games were simply a celebration point in this ongoing journey of improvement, investment, and urban transformation which never ends and is still in progress.

⁷⁵ J. A. Acebillo. "Barcelona: Toward a New Urban Planning Approach". SPATIUM, 1980-2006.

O. Nel-lo. "The Olympic Games as a tool for urban renewal: the experience of Barcelona'92 Olympic Village". [Online]. Barcelona: Centre d'Estudis Olímpics UAB. 1997. [Accessed: 2019]. Available at <http://olympicstudies.uab.es/pdf/wp090_eng.pdf>.



Drawing No. 30: La Parnasse français, engraving by Maisonneuve, from a painting by Lajoue. Bibliothèque Nationale, Cabinet des Estampes, Paris. This engraving illustrates the use of colonnades, pillars, and statuary to create the illusion of amply space in a small setting.

2.3. URBAN PARK A COMPLEX OF ART AND DESIGN

Public art in urban parks is known as the contemporary form of design that has been used in public spaces and private gardens. Even though art for public observing has been relevant for centuries, the term public art as used today describes a fairly new concept. During history, a garden has symbolized a place of goodness, beauty, and relaxation. Freedom from stress, work, and responsibility are generally required results from visiting gardens and parks. People have been encouraged by garden design for centuries. One might say that nostalgia for the Garden of Eden has provided garden designers and architects throughout history with a model of perfection to aspire to. It is only fitting that art, primarily through architecture, landscape design, and sculpture, was added to garden design to increase opportunities for mental and spiritual inspiration and relaxation.⁷⁶

Originally, parks were gardens that were created for private use. It was not until the 19th century that cities in both Europe and the United States developed town squares with gardens or transformed private gardens into public ones. Due to the rapid urbanism and the increasing number of immigrants from rural to urban areas the desire to find a place in the city that reminds you of the peaceful and natural qualities of rural landscapes was strong. In other words, the idea of an urban park extracted from the recognition of the contrast that existed between rural and urban areas, between the tranquility and order of the rural world and the disorder of urban life.⁷⁷

⁷⁶ T. Crush. Public art in urban parks. Electronic Theses and Dissertations. Department of Fine Arts, University of Louisville, Louisville, Kentucky. 2014, 295P. Available at: <<https://doi.org/10.18297/etd/295>>.

⁷⁷ L. Puppi. Nature and Artifice in the Sixteenth-Century Italian Garden, in *The Architecture of Western Gardens*. Edited by M. Mosser and G.Teyssot. Massachusetts. The MIT Press. 1991, 544P, ISBN 978-0262132640.

The purpose to find rural naturalness in urban areas developed throughout time to become the current example of an urban park. Characteristics of a contemporary urban park contain places for rest, exercise, and community activities. Besides, the aesthetic features of parks include landscape design, architecture, and art. Thus, the garden that is one of humanity's supreme creations has always strived to combine the more standardized and pleasing aspects of nature that are often suited to the wishes of the man with the highest form of art. Discovering beauty in a city through a relationship between art and nature assists visitors to have the chance to learn about a city's culture, pride, community interests, and relaxation methods. Comfortable seating areas, welcoming walkways, well-developed community spaces, and public art are park benefits that provide opportunities for thinking, relaxation, and a united social network in a city. Observation of garden progression from 16th century Italy to city parks in France and eventually the United States, reveals that contemporary urban parks develop and value traditional garden characteristics settled centuries ago. An urban park is a place that is both an enclosure with borders and a place connected to some type of garden presenting as an image of paradise in the collective imagination.⁷⁸

78 T. Crush. Public art in urban parks. Electronic Theses and Dissertations. Department of Fine Arts, University of Louisville, Louisville, Kentucky. 2014, 295P. Available at: <<https://doi.org/10.18297/etd/295>>.

- **CENTRAL PARK, MANHATTAN, NEW YORK, USA (1857), OL MSTED & VAUX**

Central Park is a short strip of surrogate nature set into the rectilinear grid of Manhattan. It started in 1857 and remain a paradigm. It gave birth to the concept of public land to the American Pastoral landscape style⁷⁹ and began the practice of landscape architecture in America. Central Park was designed by Fredrick Law Olmsted (1822-1903) and Calvert Bowyer Vaux (1824-1895) and inspired by socially-conscious supporters like William Cullen Bryant⁸⁰ and Andrew Jackson Downing⁸¹. It is completed through the inflexible management of Andrew Haswell Green and also worthy of gardening of Samuel Browne Parson^{82, 83}.

One of the impressive features of Central Park is its placement in the urban grid of Manhattan. It lies in the heart of the urban grid's geometry slightly off the center in the direction of Hudson River and seems like an abstraction of the shape of Manhattan Island itself. The block of the Central Park lies longitudinally in the transversally urban blocks across the island

79 The pastoral landscape creates a sense of great openness and freedom and provides a quiet, relaxing effect.

80 William Cullen Bryant (1794-1878) was an American romantic poet and journalist and the owner of The New York Evening Post. He printed in his newspaper press the winning design of Central Park "Greensward Plan" in 1858 and supported Olmsted for the park superintendence

81 Andrew Jackson Downing (1815-1852) was an American landscape designer, horticulturist, writer, and owner of the Horticulturist Magazine and considered as the founder of American landscape architecture. He brought architect Calvert Vaux from England to America in 1850 to help him in his works. After his early death, Calvert Vaux continued his way and named his second child Downing Vaux in tribute to his mentor. Vaux started his partnership with Olmsted in 1858 for designing Central Park while they borrowed ideas from Downing's plans for the public ground at Washington. In Downing's plan, vegetation borders used to hide cross park drives to avoid interruptions in the intended landscape experience

82 Samuel Browne Parson (1844-1923) was an American landscape Architect that spent several years studying and practicing farming. He became familiar with Olmsted and Vaux and joined them and his noteworthy design in Central Park is the restoration of the Ladies Pond.

83 J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.



Drawing No. 31: Sanitary & Topographical Map of the City and Island of Manhattan, New York, Egbert L. Viele, 1860

and creates the largest rectangle area that expresses a great slice of the island's original nature and copied from the dimension of the urban plan. It occupies an area of 843 acres (341 hectares) which is 2.5 miles (4km) length between 59th street and 110th street and covers only 0.5 miles (800m) width between 5th Avenue and Central Park West- 8th Avenue. Fifth Avenue which is the central axis of Manhattan with a couple of luxury shops and clubs which bounded the east part of the park and starts from the Washington Square Park in Lower Manhattan and is supported by Mount Morris to the north of the park and has an entrance at the southeast corner of the park. Broadway, which followed the natural morphology along the spine of Manhattan, cuts across the urban grid as a diagonal line from the southern tip of the island to its north-west end. It touches the south-west corner of the park at the intersection of the 8th Avenue in the Columbus Circle. Therefore, the southern entrances of the park located at two important points in the grid. The northern part of the park laid originally at 106th Street which is one of the wider streets in the grid and when it moved to 110th Street, it preserved a balance between the lower and upper part of the park.⁸⁴

Central Park was known as the best example of the union between the aesthetic and engineering in America during the 1850s. It is because unlike the European culture which made a great division between the fine arts and technological innovation, Americans are the leader of hiding the line between the two. For example, the above-ground of the park was a

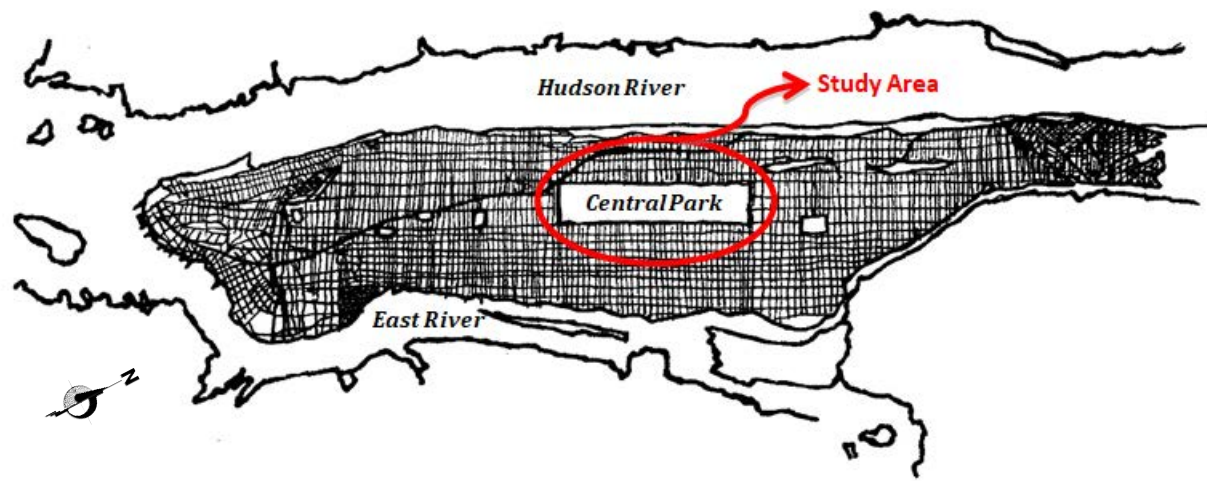
⁸⁴ A. Tate. Great City Parks. London. USA and Canada: Spon Press. 2001, 218P, ISBN 0-419-24420-4.

J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.

C. Steenbergen, W. Reh. "Metropolitan Landscape Architecture: Urban Parks and Landscapes". Netherlands: THOTH. Chair of Landscape Architecture. Faculty of Architecture, TU Delft. 2011, 446P, ISBN 978-90-6868-591-6.



Photo No. 26: Aerial View of Central Park and its Surroundings, Photo by U. Jason, 2014



Drawing No. 32: Map of the Study Area, Drawn by Author, 2017

designed landscape that copied nature perfectly and concealed its fabrication and below ground was an efficient technological system. The broad meadows were created by blasting the outcrops, draining the swamps, and filling them with soil. The naturalistic lakes were the result of water flowing through the same system of pipes that were also used for residential purposes like filling the bathtubs or kitchen sinks. By the way, the whole park seems natural however it is an entirely man-made landscape because it is composed of soil, grass, trees, water, and flowers that needed constant care. For Olmsted, it was a necessity to employ tricks to achieve simple artifices of rusticity to reach the effects of simplicity, tranquility, and unsophisticated naturalness.⁸⁵

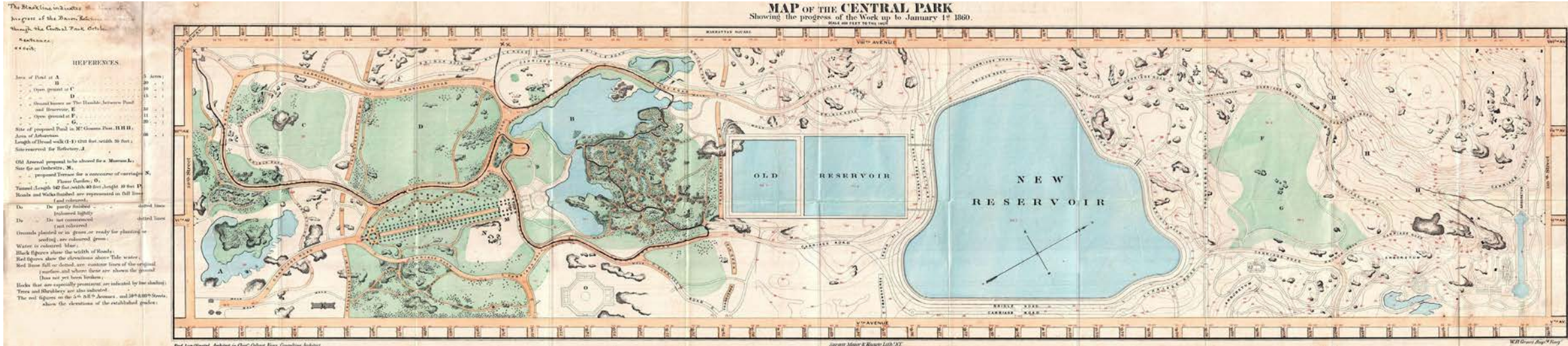
Moreover, Olmsted designed each site for a variety of uses to harmonize the new features with the natural appearance of the landscape with two continuous fundamental concerns of Longevity and design. for him "the only way in which any town park can long be kept in a generally useful and improving condition, is by providing so well and sufficiently for the uses which are designed to be made of it that the great body of decent, orderly, tidy and respectable people will not be impelled to fall into practices inconvenient to others or unfavorable to the preservation and improvement of its natural beauty".⁸⁶

The next drawings show the development of the green areas during the time in the park map.

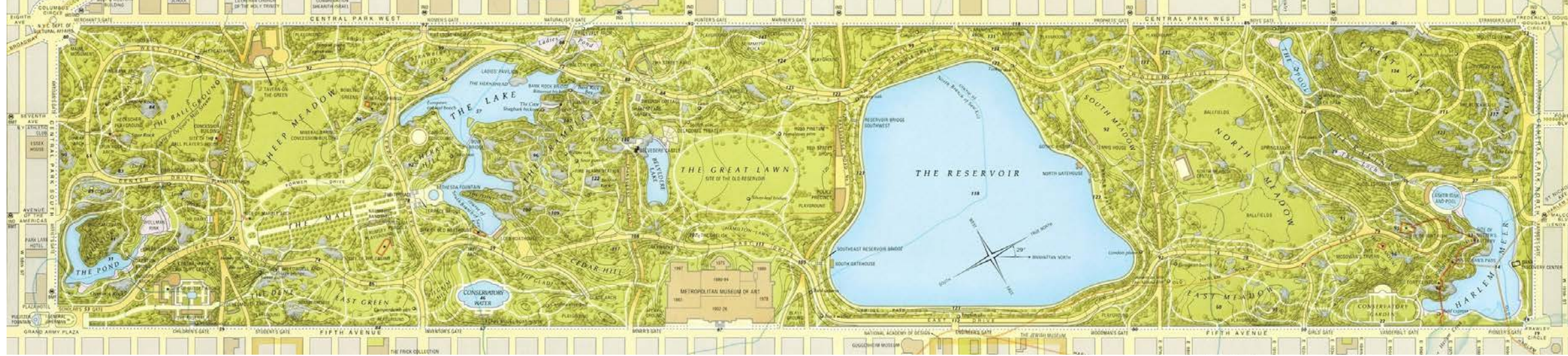
⁸⁵ E. Stevenson. "Park maker: A life of Fredrick Law Olmsted with a new introduction by the author". Originally Published: New York: Macmillan. 1977, 528 P, ISBN 0-7658-0614-2.

S. C. Miller. Central Park, An American Masterpiece. New York: Harry N. Abrams. Library of Congress, Central Park Conservancy, 2003, 255 P. ISBN 0-8109-3946-0.

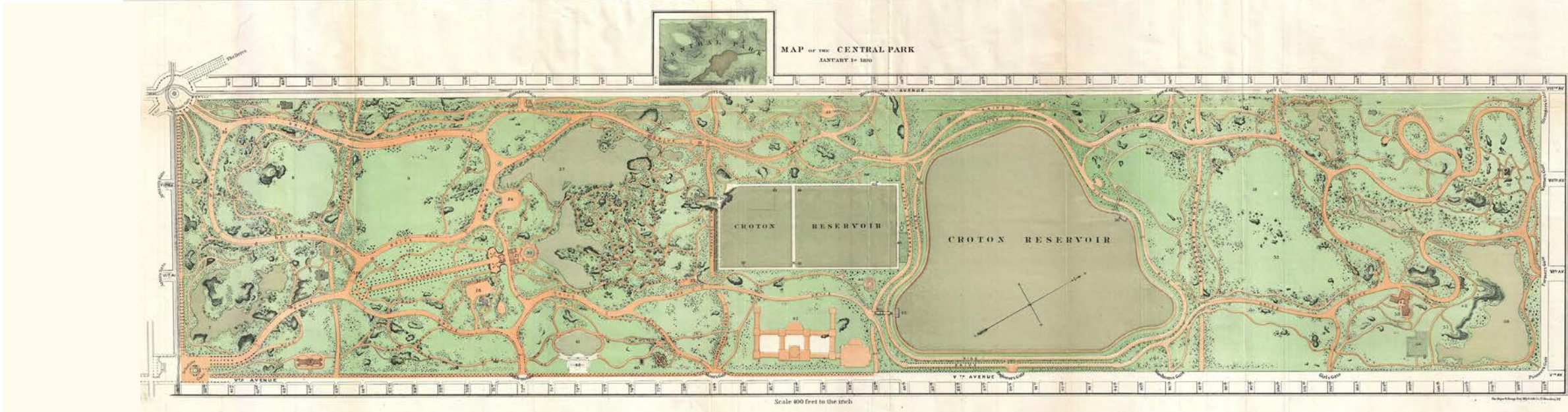
⁸⁶ P. Lambert, P. Costantini, J. Szarkowski. Viewing Olmsted. Photographs by R. Burley, L. Friedlander, G. James. Canadian Center for Architecture, Montreal. Distributed by the MIT Press, Cambridge, Massachusetts and London, England. 1996, 119P, MIT ISBN:0-262-62116-9, CCA ISBN: 0-920785-58-1.



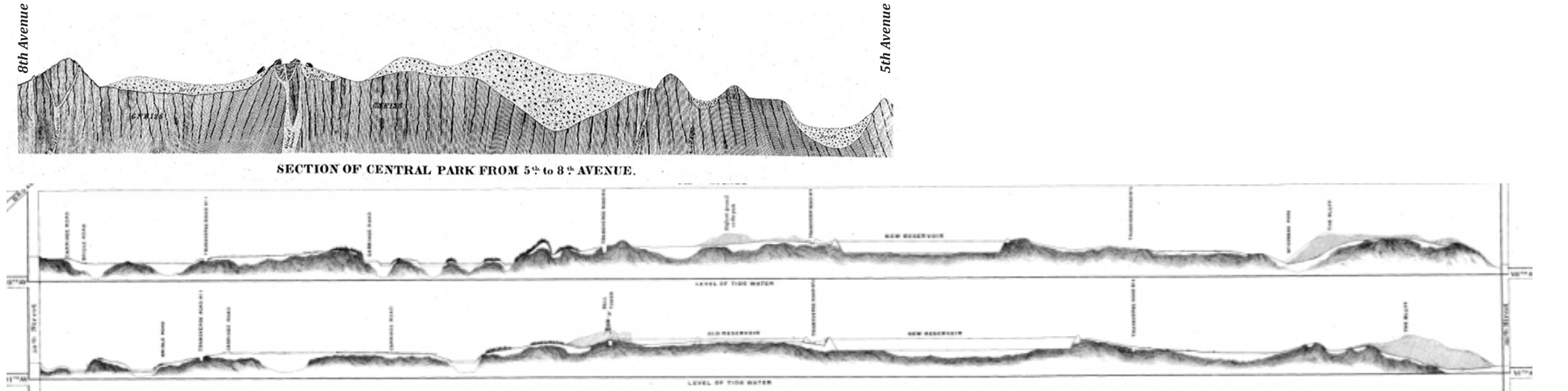
Drawing No. 33: Vintage Central Park Map, 1860



Drawing No. 35: Central Park Map, 1996



Drawing No. 34: Vintage Central Park Map, 1870



Drawing No. 36: Central Park Sections Illustrating the Park's Geology from 5th to 8th Avenue and Cross-sections of the Park at Sixth and Seventh Avenues, Published as Part of Egbert Viele's Survey of the Park in First Annual Report on the Improvement of the Central Park, 1857

CENTRAL PARK FUNCTION

“This park is being to supply to the hundreds of thousands of tired workers who have no opportunity to spend their summers in the country, a specimen of God’s handiwork”

Fredrick Law Olmsted,1858

The blocks of 50*200 meters of the urban grid were applied in the expansion plan of New York in 1811 that laid from south to north over the whole island of Manhattan. About the middle of the 19th century, it was foresighted that filling the urban grids with buildings would destroy the original landscape. Therefore, the first idea of a great park came out to work as the safeguarding of the original landscape in the urban layout. The request for a major public park in New York intensified by 1850 when New York had a population of about 654,000 and living conditions were poor.⁸⁷

Coal smoke polluted the air, no means of sewerage disposal, unpaved streets, and filled with geese, chickens, pigs, and sheep as well as people and carriages made catastrophic living situations. In this case, both of the mayoral candidates assured that they would create a city park on a scale that will be worthy of the city. In 1853 the Council committee suggested a central site between 59th and 106th streets (It was extended northward to 110th Street in 1863) and 5th and 8th Avenue. It was not just New York that faced these problems but it was there that a solution first seemed essential. The first option to encourage morality and decrease the negative impact

87 Central Park New York City. How Central Park Keeps New York City Healthy. In: Central Park Conservancy [Online]. New York. April 2017. [Accessed: April 2017]. Available at <<http://www.centralparknyc.org/about/blog/central-park-keeps-nyc-healthy.html>>.

of urbanization was access to the parks. It was here that the basic concept of Central Park rose.⁸⁸

Central Park was created to be an antithesis to the bustling and harsh urban life and has always been a restful and tranquil place for the urban dwellers of Manhattan. It can call a democratic space that is open to people of every background and economic status. Central Park contains different elements that create the possibility of identifying the functional pattern of it in Manhattan and will be described in the following paragraphs.⁸⁹

This site had been chosen because the rock outcrops and swamps in the landscape made it almost impossible for building constructions and besides of the land being already owned by the city for constructing a new reservoir. In 1857 the first important landscape designs competition for the best proposal of laying out the park held in the United States for Central Park. The first prize went to the “Greensward” plan by Fredrick Law Olmsted and Calvert Bowyer Vaux that afterward hailed as a landmark in the history of landscape architecture.⁹⁰

Increasing the noise and traffic, overcrowding, and lack of open space where the negative impacts of urban growth in Olmsted’s view. He argued for the function of a centrally located

88 W. D. Solecki, J. M. Welch. “Urban Parks: Green Spaces or Green Walls?”. Landscape and Urban Planning, ELSEVIER. 1995, No. 32, P. 93-106.

B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

89 B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

Central Park New York City. How Central Park Keeps New York City Healthy. In: Central Park Conservancy [Online]. New York. April 2017. [Accessed: April 2017]. Available at <<http://www.centralparknyc.org/about/blog/central-park-keeps-nyc-healthy.html>>.

90 F. L. Olmsted. Walks and Talks of an American Farmer in England. New York. [Online]. Gerstein, Toronto. 1852. [Accessed: December 2015]. Available at <<https://archive.org/details/walkstalksofamer00olmsuoft/mode/2up>>.

(for an optimal function) large park in every city as a full separator between the populace and urban life. The idea of the Greensward Plan was that Central Park should express an overarching aesthetic motive and provide users with an antithesis to the harsh reality of city life. The romantic landscape that he took and preserved for all future generations is in contrast to today's planning which often extends only to tomorrow. Olmsted and Vaux focused their eyes and thoughts on the generations to come when they were exploring Central Park. Olmsted believed that this park should be defined by a large, centrally located, slightly developing open space, fringed by shady trees that would screen out the sight of the city, with all its bad qualities.⁹¹

"The park is not planned for such use as is now made of it, but with regard to future use, when it will be in the center of a population of two million hemmed in by water at a short distance on all sides"

Fredrick low Olmsted, 1870

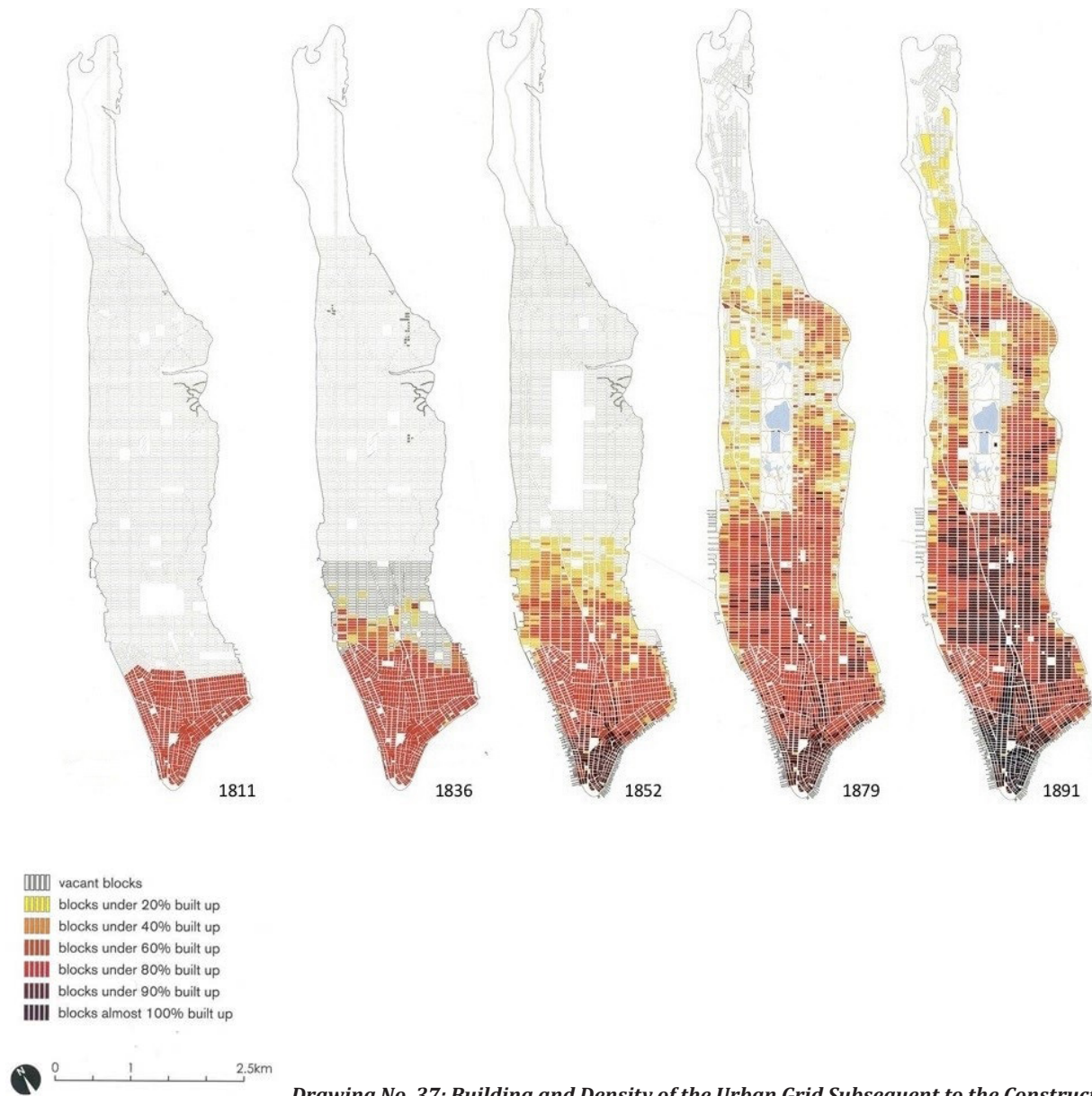
This prediction for the future of Central Park and America was exceptional at the time that no motor car had been invented. The social views of Olmsted were more paternalistic that it was clearly shown in his description of the purpose of Central Park.

"This park is being to supply to the hundreds of thousands of tired workers who have no opportunity to spend their summers in the country, a specimen of God's handiwork"

Fredrick low Olmsted, 1858

⁹¹ J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.

As described before Olmsted's view for the designation of Central Park was mostly influenced by Birkenhead Park in Liverpool, concerning the differences of the situation in America and England. The significance of Olmsteds' contributions can be understood only when one considers the cultural context out of which they grew. By the mid-nineteenth century, industrialization and urbanization were already choking many American towns and cities. Before that time, Americans had regarded the landscape with a pioneer mentality viewing it as a dark, never-ending threat to be kept out of one's ordered life to be controlled. By the mid-nineteenth century, the wilderness and nature were fast disappearing. Green space was not yet at a premium, but residents of the older cities were beginning to feel crowded. New York contained a variety of small green spaces, recreational facilities, parks, and squares like Battery Park, City Hall Park, Union Square, Madison Square, and Washington Square all with a formal layout. But nowhere in New York was there a naturalistic park. As in England where the Romantic landscape developed hand in hand with intense deforestation and industrialization, naturalistic green spaces became increasingly popular as the wilderness shrank. New York had become a difficult place to live. Diseases spread by the poor condition of the unpaved streets but pollution of different types resulted when they were paved. Other cities were suffering similar problems but it was in New York that a solution first seemed a necessity. Editorials by William Cullen Bryant in the New York Post called for the creation of a large park in both Manhattan and Brooklyn to alleviate some of the harsh effects of the city on its inhabitants. They believe that green spaces could be restorative and helpful. During this period Andrew Jackson Downing who was an American preeminent landscape designer was the leading proponent of the English naturalistic landscape style. He wished to bring and



Drawing No. 37: Building and Density of the Urban Grid Subsequent to the Construction of Central Park



Drawing No. 38: Changes in the Park after 1870

create a green space and speak up for an English style park for New York. But unfortunately, he drowned in a steamboat accident on Hudson River in 1853 and his work was carried on by his assistant Calvert Vaux.

Calvert Vaux invited Fredrick Law Olmsted to become his partner in the design competition for the proposed public park. Olmsted did not have an extensive background in landscape design, but he was a logical choice to become Vaux's partner since he was already superintendent of the proposed park with responsibility for clearing the land. Olmsted joined Vaux and their plan called Greensward plan which won the competition over 34 others. The Greensward plan became the blueprint for Central Park, an 830-acre enclave of romantic landscape fantasy, offering a sharp contrast to the concrete rectilinearity, the noise, and the pollution of city life. Open to all, Central Park was intended to refresh and restore the minds and bodies of its users. Coming precisely at the time when industrialization and urbanization were developing rapidly, it represented a clear break from the formality of design that had characterized American Parks. It was a naturalistic design, featuring a landscape of undulating meadows, varied woodlands, and seven bodies of water. Though completely artificial, the design was intended to appear as if it had been created by the hand of God. The design concept was to prove so successful that they would be carried across America first by Olmsted and then by his son and the successors.⁹²

92 Central Park NYC. Central Park Conservancy, Central to the park. History [Online]. New York. 2014 [Accessed: February 2015]. Available at <<http://www.centralparknyc.org/about/history.html>>.

DESIGN PRINCIPLES

The desire to use landscape art to meet deep human needs, coupled with his conviction that the process involved must have been an unconscious one, led Olmsted to insist on a whole series of design principles that differed significantly from those of the gardeners of his day. In the broadest sense, he felt that what separated his art from that of the gardener was what he termed the "elegance of design" - the creation of a composition in which all parts were subordinated to a single, coherent effect. There was no place in his work for details that were to be viewed and admired as such. People should not, he warned think "of trees as trees, of turf, water, rocks, bridges, as things of beauty in themselves." In his art, they were "as little so as warp & woof in a brocade." A crucial element in securing composition was the effective organization of space. No matter how limited the area he had to design, Olmsted sought to create a "perspective effect" increasing the sense of space contrasting dark foreground forms with lighter, less distinct ones further away. His term scenery "simply did not apply, he said "to any field of vision in which all that is to be seen is clear and well-defined in outline." Accordingly, he introduced into the scenes he designed either "considerable complexity of light and shadow near the eye," or "obscurity of detail further away. It is possible to identify some important elements that Olmsted's landscapes have in common.



Photo No. 27: Composition of the Landscape is as Carefully as a Painting in Olmsted's Designs, Central Park, Photo by Kashi, 2011, Central Park Online Archive

- ***MAN-MADE WORKS OF ART***

Central Park is a fully man-made landscape which is a reasonable composition of topography with architecture, horticulture, and water that sits next to a designed circulation system, infrastructure, and landscape accessories in a completely artistically manner.

Olmsted designs like other man-made landscapes from Pasargadae to Versailles are artful constructions composed of seven basic building components as topography, circulation system, horticulture, architecture, water, infrastructure (like drainage), and landscape accessories. That Olmsted saw his work as composed of art is clear. Referring to Central Park he said: “ The park throughout is a single work of art, and as such subject to the primary law of every work of art, namely, that is shall be framed upon a dingle, noble motive, to which the design of all its parts in some more or less subtle way, shall be confluent and helpful”. Olmsted and Vaux certainly followed these principles in Central Park, and Olmsted continued to follow it in the parks he designed independently. But politicians and citizens are often unsuccessful to recognize the park as works of art. There were and still are never-ending proposals for new uses, new restaurants, and enlarged recreational facilities. Where additions to the parks as Olmsted calls “intrusions” have been permitted, they decline the artful design because the overall composition was not considered. The ability to visualize hundreds of acres of undeveloped ground as a single entity seems to be rare therefore none of his designs remains untouched.⁹³

⁹³ C. H. Voorsanger, J.K. Howat. “Art and the Empire City: New York 1825-1861”. The metropolitan museum of art, New York. Yale University Press, New Haven and London. 2000, 639 P, ISBN 0-300-08518-4.



Photo No. 28: Sublime Style Shows Perfectly in this View of Manhattan Skyline beyond Central Park, Photo by A. Fotolia, 2014

- ***ROOTS IN THE ENGLISH ROMANTIC STYLE***

The English romantic landscape is a celebration of nature without being natural itself. Olmsted wrote that “it was based on the experience that modern civilized men find more refreshment and more lasting pleasure in natural landscape”. These landscapes are most often characterized by broadly systematic, slightly sloping pasturelands spotted with groups of trees and sensuously contoured water bodies and appear to be natured at perfection. Whatever the beginning of the style comes with four subdivisions with their criteria. These were the sublime, the beautiful (called pastoral), the picturesque, and the gardenesque. The sublime was marked by a vastness of scale, often with features that would only be described as awesome, such as the magnificence of mountain range or the vast expanse of the ocean. Having little to do with man-made design, the Sublime was meant to evoke an awareness of God in nature.⁹⁴

The beautiful or pastoral style was the most common feature of the Romantic style and is the basic component from which the other sub-styles grew. Its features have been defined but also, this type of scenery was planned to extend to the horizon, with frequent punctuations by architectural follies, and flows continuously by cruel interruptions such as barriers. Olmsted used pastoral style to create a sense of the peacefulness of nature and to soothe and restore the spirit. The Pastoral style was the basic model of his park designs, which he intended to, serve as the setting for unconscious or indirect recreation. He thought that the chief purpose of a park was an effect on the human organism by the action of what

⁹⁴ F. L. Olmsted, C. Vaux. “Description of a plan for the improvement of the Central Park: Greensward”. New York 1858. Reprinted 1868, 36P.

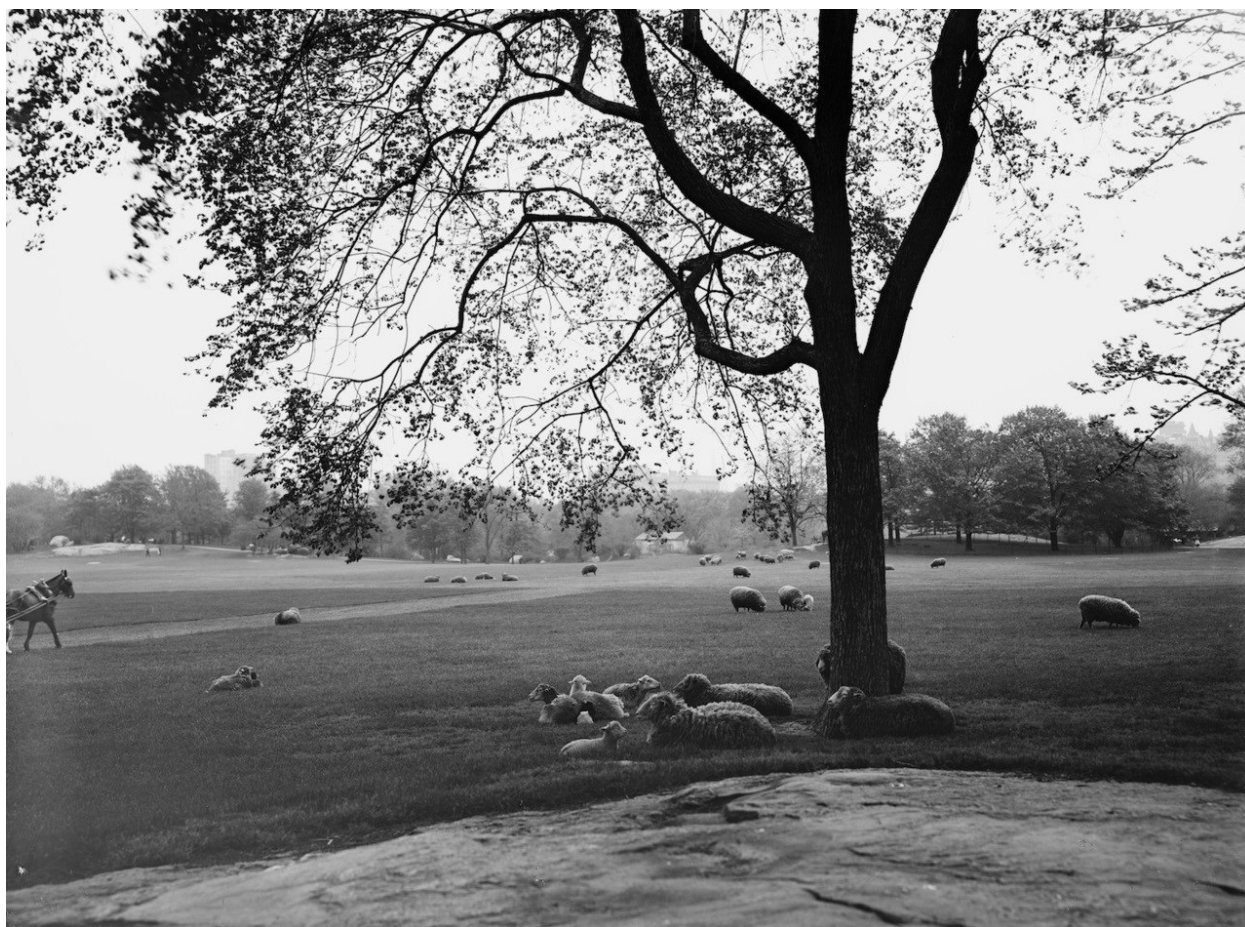


Photo No. 29: Beauty or Pastoral Style, Sheep Meadow, Central Park, 1902

it presents to view, which action is of a kind that goes back of thought, and cannot be fully given the form of words. In such designs, there were broad spaces of greensward, broken occasionally by plantations of trees. The boundary was indistinct, due to the obscurity of detail further away produced by the uneven line and intricate foliage of the trees on the edge of the open space. In other parts, the reflection of foliage by bodies of water introduced another element of complexity and indistinctness. The effect was meaningful for parks on parklands that Olmsted had seen in England, and it was the image of the rich turf of that country, which he described as green, dripping, glistening, gorgeous when he first saw it and remained for him the model of the Pastoral style.⁹⁵

The picturesque is stronger and sharper and characterized by rocky terrain with twisted and even dead plants. Olmsted introduced the complexity of light and shadow near the eye to improve another aspect of nature as mystery and kindness by adding the style of the Picturesque to his design. He used a variety of tints and textures of foliage that made forms indistinct and created a constantly changing play of light and shadow to achieve a sense of mystery. At the same time, he planted freely to secure greater richness and lushness of growth than nature would produce independently. He planted one layer upon another, beginning with ground cover, then shrubs, then trees above them. To complete the effect he often added creepers that covered the trunks and branches of deciduous trees, keeping them green with foliage even in winter. It was developed in response to criticism that the beautiful was too improved to represent nature correctly. The journey to mountains, valleys, lakes, and waterfalls followed by attempts to recreate the wilderness in a garden setting, and

⁹⁵ B. Kelly, G.T. Guillet, M.E.W.Heren. *Art of the Olmsted Landscape*. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.



Photo No. 30: Picturesque Style was True to the Roughness and Drama of Nature, The Ramble, Photo by Central Park Online Archive, 2017

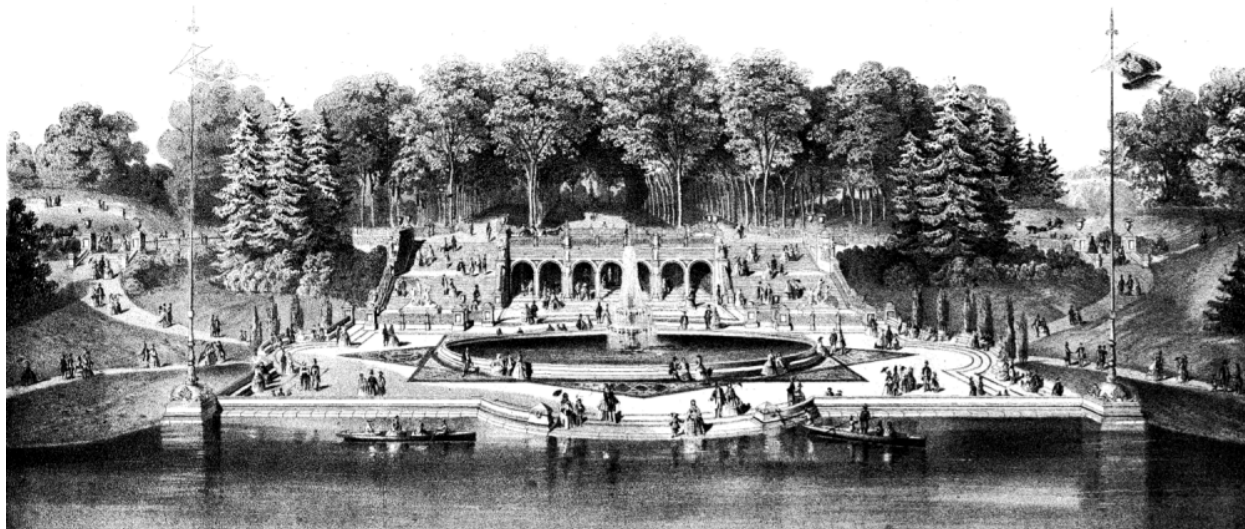
therefore, a new earthy realistic style evolved. The gardenesque style, evolving from the English love of horticulture was characterized by the careful arrangement of shrubs and flowers combined on an otherwise open lawn area. Whether highly complex or relatively simple, these designs were not natural. The philosophy of the gardenesque was to include the hand of man as a part of nature but only at a humble level. On the other hand, gardenesque style is rejecting the symmetrical geometric designs of the Persian gardens in the European gardens like Versailles and opened and facilitated a new vision to the park design.⁹⁶

Olmsted and Vaux used each of the romantic landscape sub-styles in their park designs, as in England the beautiful became the basic style. Olmsted believed that the beautiful should be the beauty of the fields, the meadows, the prairie of green pastures, and water. In contrast, he feels the picturesque style was not the most desirable characteristic of a town park. And he often uses it as an accent to add variety and interest. The sublime which could never be designed was incorporated coincidentally or by careful sitting to make use of awesome scenery. Such scenery was not easily found. The park designed by Olmsted in the Romantic style remains in that style today, although subsequent park administrations have lessened this effect.⁹⁷

⁹⁶ E. Boults, C. Sullivan. Illustrated history of landscape design. New Jersey. John Wiley & Sons Inc. 2010, 267P, ISBN 978-0-470-28933-4 (cloth).

⁹⁷ P. Grahm, A. S. Ulrika. Man's Needs for Urban Parks, Greenery and Recreation. Institute for Landscape Planning. Alnarp: Swedish Agricultural University, 1985.

E. Boults, C. Sullivan. Illustrated history of landscape design. New Jersey. John Wiley & Sons Inc. 2010, 267P, ISBN 978-0-470-28933-4 (cloth).



Drawing No. 39: Victorian Elements, Looking South from the Ramble and the Lake at Bethesda Terrace. Third Annual Report of the Board of Commissioners, Published January 1860.

- ***THE VICTORIAN INFLUENCE***

While the parks of Olmsted and Vaux are derived from the English Romantic landscape, they were designed more than 150 years after its invention and reflect the fashion of the day. The details of the buildings, the landscape accessories, the bridges, and the arches were all typical of the Victorian era.⁹⁸

Today that heritage is almost disappeared as the Victorian styles were usually expressed on objects that fell easily into disrepair and have been replaced with standardized features. Central Park is still the most Victorian of Olmsted's designs although Victorianism is mostly restricted to the Bethesda Terrace area and the bridges.⁹⁹

⁹⁸ Victorian Style according to Free Dictionary defined as a style of architecture used in Britain during the reign of Queen Victoria characterized by massive construction and elaborates ornamentatio.

⁹⁹ Central Park NYC. The official account of Central Park Conservancy, Instagram. [Online]. New York. [Accessed: April 2017]. Available at: <<https://www.instagram.com/centralparknyc/>>.



Photo No. 31: Contrast Between the Hard Gray City and Soft Green Park, Two World Divided, Central Park, Photo by H. Centeno, 2015

- ***CONTRAST BETWEEN THE CITY AND THE PARK***

Olmsted tried to make such a contrast between the city and Central Park in a way that once the visitor entered the park, feels separated from the outer city and imagine itself truly in the landscape. He did not use even one straight line, used the plant barriers, and made the edge of the park invisible to promote this sense of feeling for the users. As far as Olmsted's designs reflect the taste of the era in which he lived, therefore, his attempt for creating a contrast to city life reflects the intense needs of the people for a restful landscape like scenery and the tranquility of a park. He desired that his park should provide the greatest possible contrast with the limiting and confining conditions of the town and serve as an antithesis to its bustling, paved, rectangular, walled-in streets. The remarkable contrast of the park to the physical limitations of city life gives Olmsted's landscape their visual and environmental strength. To achieve this idea Olmsted used earth manipulation like the creation of berms around the park perimeter, the creation of plant barriers which acted as a screen, and other devices, including those of scale and color arrangement, to render the edge of the park invisible. In New York, he also recommended using the zoning regulations which would restrict the height of buildings around the parks. Unfortunately, this method was not followed and today there is a tall fringe of skyscrapers around Central Park, but they emphasize the contrast between the two environments.¹⁰⁰

¹⁰⁰ F.L. Olmsted, C. Vaux. "Description of a plan for the improvement of the Central Park: Greensward". New York 1858. Reprinted 1868, 36P.



Drawing No 40: Currier & Ives Print of the Construction of Central Park, 1859, NY Public Library, Digital Collections

- ***BOLD LAND FORMS AND THE GENIUS OF THE PLACE (TOPOGRAPHY)***

Olmsted used topography as the underlying skeleton on which to lay things and added to his view that the purpose of the landscape architect was to give people “greater enjoyment of scenery than they could otherwise have consistently with convenience within a given space.” He also desired his designs to remain true to the character of their natural surroundings, and not to clash with them. He began his design process for Central Park by considering the character of the site and search for wherever possible to use it to best advantage. He was allowed to make changes to the topography coinciding with his purpose. Olmsted found the topography visually exciting in the hilly and rocky areas which are often becoming the prominent feature of the place. On the other hand, it is the wide sensuously contoured landform that evokes distance and peacefulness in the pastoral style and just can be found in the characteristics of topography. He believed that this feature is the highest ideal that can be aimed for in a park. Therefore, he reused topography despite the lack of modern mechanical equipment and tons of earth had been moved by men and animals to create hills, valleys, and even slopes. He continued and adapted the old principles of English landscape gardening while at the same time developing his theory of the unconscious influence of scenery. The result was a series of designs that combined richness and wildness of planting with integrated components in a way that never was made in the history of landscape design.¹⁰¹

¹⁰¹ J. P. Newell, M. Seymour, T. Yee, J. Renteria, T. Longcore, J. R. Wolch. “Green alley programs: Planning for a sustainable urban infrastructure?”. *Cities*, ELSEVIER. 2013, Vol. 31, P. 144–155.

D. J. Patrick. “The politics of urban sustainability: Preservation, redevelopment and landscape on the High Line (M.A. Thesis)”. Budapest: Central European University, 2011.

B. Kelly, G.T. Guillet, M.E.W.Heren. *Art of the Olmsted Landscape*. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.



Photo No. 32: Top: View Toward Central Park South During the Construction of the Pond, 1858

Down: The Same View Toward the Central Park South after Grading of the Site, 1863

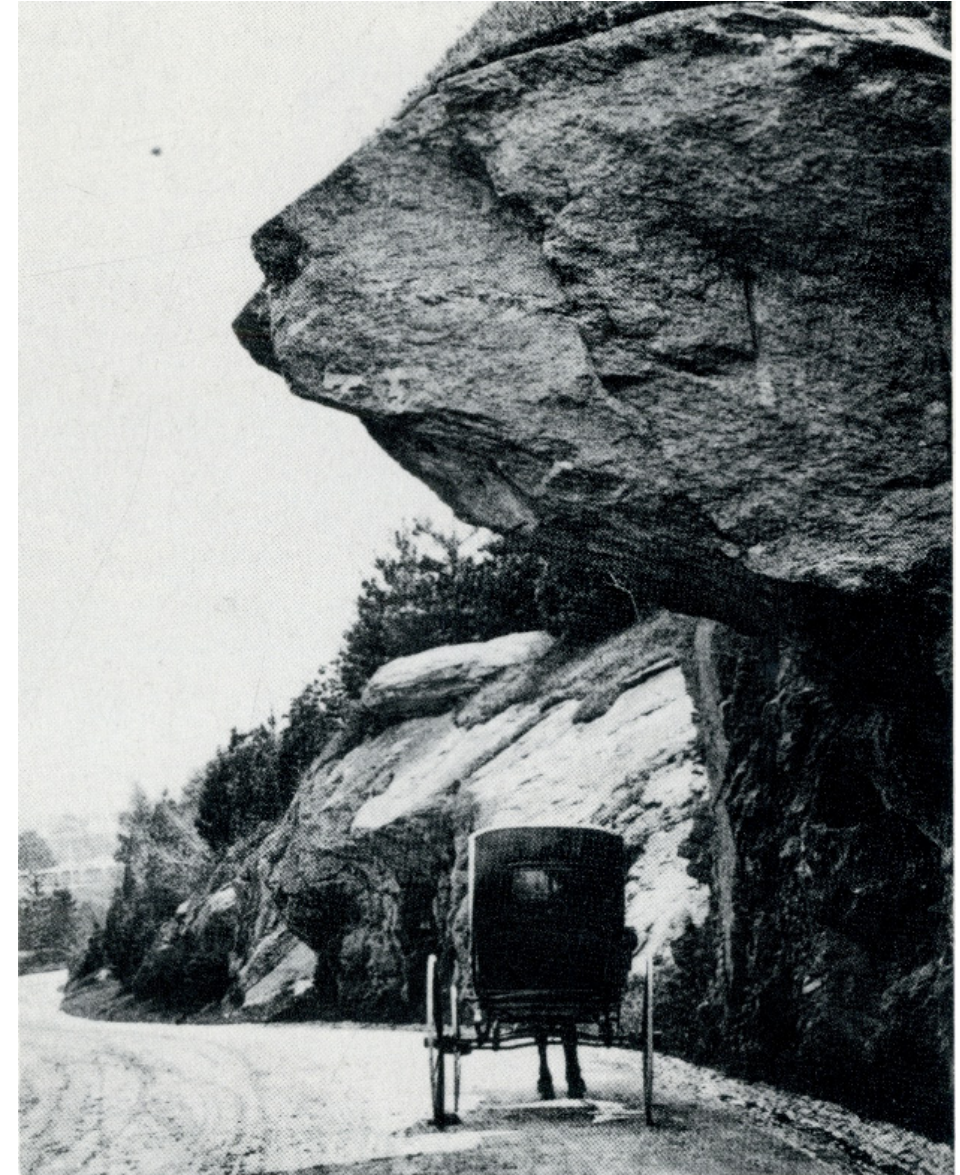


Photo No. 33: Uncovering the Rock to Reveal its Sculptural Quality as a Bear, Central Park

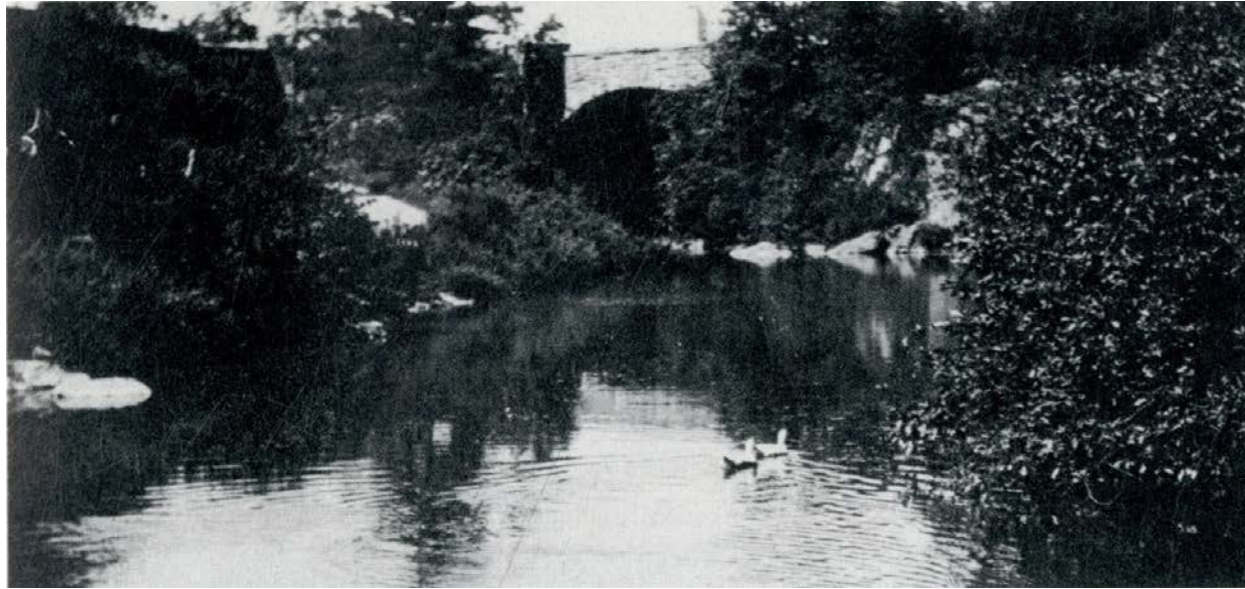


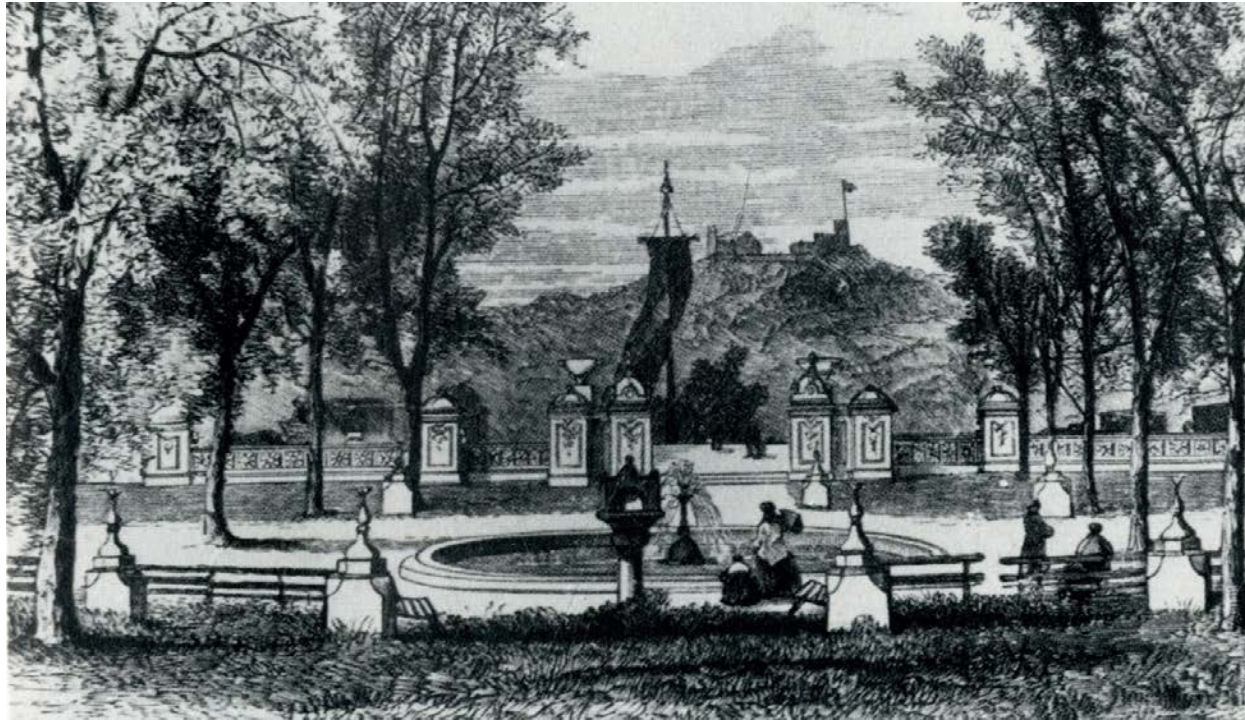
Photo No. 34: Top: The Western Part of the Central Park
Down: The Same View to the Lake Turned into a Nondescript Meadow

- ***THE BALANCE OF TURF WOOD AND WATER***

However, the topography was the skeleton of Olmsted's design but he creates great spatial frameworks by a cautious arrangement and balance between turf, wood, and water on which were laid the elements of horticulture, architecture, and landscape accessories. These elements were important to the design concept and Olmsted described Central Park as "possessing the beauty of broad landscape scenes and combinations of trees with turf and water". By the cautious organization of these three elements, meadows become such outdoor-rooms, wooded areas become friendly and quiet, and relatively small water bodies appear seriously enlarged as tree-covered peninsulas and islands make park boundaries uncertain. Unfortunately because of the changes that have been made during the years, such as filling in of water bodies by the elimination of islands to create peninsulas where none were intended or somehow by addition of buildings which ruined the lovely open space, the balance between these three elements are less apparent today than what Olmsted had planned. Besides, the incorrect planting or even the natural changes (when trees and other plants died and left a clearing area in a place where there was intended to be a rich horticultural landscape or when the meadows grew greatly to woodland) always ruin a meadow and make it greatly far from what is was projected. Filling of the western portion of the lake in Central Park is an example of the destruction of balance between these tri-partite elements.¹⁰²

¹⁰² BOURASSA, S.C (1991), *The Aesthetics of Landscape*, Belhaven Press, London. CHING, F.D.K. (1979) *Architecture: Form, Space and Order*, Van Nostrand Reinhold, New York.

B. Kelly, G.T. Guillet, M.E.W.Heren. *Art of the Olmsted Landscape*. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.



Drawing No. 41: Vista Down the Mall, Across the Ramble to the Belvedere, Central Park, 19th Century



*Photo No. 35: Left: View of the landscape from the Dairy, Central Park, 19th Century
Right: The Same View Blocked by a Comfort Station and a Skating Ring, Central Park, Present*

• VIEWS

The use of views as an aesthetic uniting feature was important for Olmsted which comes along with the use of turf, wood, and water. Sequences as a great example of views were intended to motivate attention and move people along and toward a specific objective and a great way for Olmsted to control the way of experiencing the park. The most famous view in Central Park which is now hidden was the view from the Mall across the Terrace, the Bethesda Fountain, the Lake, and the Ramble to the Belvedere call Vista Rock. The view toward Vista Rock for Olmsted was an item to attract the visitors and catching their eyes from the edges of the park towards the center where greater tranquility was possible and hold them in their direction. Views usually arrived at an architectural element but they also might end where the land and the plantings created the impression of boundless space just beyond one's vision. Bridges, rustic shelters, or even sparkle of water might be leadership for the views across the water; however, views across the lawns were directed by the trees at the edges of the lawn.¹⁰³

The most obvious views were on a big scale but it is often surprising and more attractive if the scenery opened before you without any flourish. Unfortunately, many of Olmsted's views have been defected by nature as unlimited growth of trees and shrubs but they could easily be restored by the cautious cutting and thinning of the trees.

¹⁰³ C. Tilley. "A Phenomenology of Landscape: Places, Paths and Monuments". 1st Edition. USA: Berg Publishers, 1994, ISBN 978-1859730768.

C. Konijnendijk, K. Nilsson, T. Randrup, J. Schipperijn. "Urban Forests and Trees: A Reference Book". Springer, Berlin. 2005, 520 P, ISBN 978-3-540-25126-2.



Photo No. 36: Ramble Sequence, Central Park ---> Continued in the Next Pages

- *THE SEQUENTIAL EXPERIENCE*

If views are considered as elements that are designed to catch the eyes and attract people toward them, the sequential experiences were created that make the way along with views attractive and super interesting which keeps you all the way long and guides you toward views. Actually, when Olmsted was designing Central Park, he was fully aware of such strategies and used them carefully, thus Central Park plan contained a series of designed passages that were located cautiously to lead the visitors by what they see with their eyes and also by a continued discovery of fresh objects. Therefore, the visitors cannot but hope for still greater space than is seen before and this hope is encouraged and pushed them along the way. Park scenery should contain richness, distance, depth, complexity, atmospheric perspective, and mystery. Therefore, the passing observer is very strongly impressed with how views are successively opened. The most elaborate, intricate, and fascinating sequential experience among any Olmsted park experience can be awarded to the walk from the Belvedere through the Ramble across the Bow Bridge to the Bethesda Fountain in Central Park.¹⁰⁴

¹⁰⁴ E.B. Rogers. "Landscape Design: A cultural and architectural history". Editors: J. Moore, E. Stainton, R. A. Gallin, Designer: A. Rogers, Photo: J. K. Crowley, D. Gongora. H. A. Abrams. New York. 2001, 544P, ISBN 0-8109-4253-4.

F. L. Olmsted. Walks and Talks of an American Farmer in England. New York. [Online]. Gerstein, Toronto. 1852. [Accessed: December 2015]. Available at < <https://archive.org/details/walkstalksofamer00olmsuoft/mode/2up>>.

J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.



Photo No. 36: Ramble Sequence, Central Park



- **SYSTEM OF SEPARATED ROUTES**

“It will be perceived that no long straight drive has been provided on the plan: this feature has been studiously avoided because it would offer opportunities for trotting matches. The popular idea of the park is a beautiful open green space, in which quiet drives, rides, and strolls may be had. This cannot be preserved if a race-course, or a road that can readily be used as a race-course, is made one of its leading attractions.”

Olmsted and Vaux, Greensward plan description

The circulation system of Central Park was the real standout feature of the Olmsted-Vaux plan that they (Olmsted & Vaux) used to control the visitor’s experience. Olmsted did not comment especially about the circulation system of Birkenhead Park during his first visit but it must have made a deep impression on him after his second visit in 1858 when he was involved with the designation of the Central Park for New York. Olmsted and Vaux thought of the park as a retreat but they also recognized that its size and location required it to be integrated into the working and residential city outside. Olmsted carried the concept of an English garden to its logical conclusion and designed the first separated transportation system here. In which the different paths for pedestrians (The Promenades and Walks), horseback riders (The Bridle), Carriages (The Drive), and traffic (The street, firstly also for carriages) were separated from one another. He also separated the types through the use of bridges and arches. This concept firstly appeared in his design for Central Park and then he strived for the same strategy in all his park designs. The four east-west transverse routes, at 65th, 72nd, 79th, 86th, and 79th streets, planned at regular intervals to carry crosstown traffic

through and below the park’s land and connected the east and west sides of the park without disturbing the tranquil experience of park users have. To achieve this goal, they are sunken about two meters below the park level and hidden by a border that covers even the bridges crossing them. Therefore, the visitors were not aware of the traffic within the park, and this strategy more than anything else contributed to the success of Central Park. To connect the North and South part, East Drive and West Drive designed that together formed a path about ten kilometers long. There was only a narrow strip to the east of the New Reservoir because Olmsted had the tiniest space for the organization of the routes there. His idea was to lead the Drive through an arcade here with shops under it and a view out over the reservoir and Fifth Avenue from the top, but it never realized to open up park routes to the city and the borderlines were densely planted. The transportation system of the park linked the park into the circulation network system of the city grid without interrupting the picturesque view of it.¹⁰⁵

About thirty-four bridges and eleven overpasses were needed that each of them designed with different architectural material and motifs from cast iron to brick, granite, brownstone, and wood. The idea of sunken roads was the result of the Olmsted visit to England that attracted him greatly. He observed for the first time near Hereford these sunken roads, “narrow, deep and shady, often not wider than the cart-track, and so deep that the grassy banks on each side were higher than our heads”.¹⁰⁶

¹⁰⁵ S. C. Miller. Central Park, An American Masterpiece. New York: Harry N. Abrams. Library of Congress, Central Park Conservancy, 2003, 255 P. ISBN 0-8109-3946-0.

¹⁰⁶ Central Park New York City. How Central Park Keeps New York City Healthy. In: Central Park Conservancy [Online]. New York. April 2017. [Accessed: April 2017]. Available at <<http://www.centralparknyc.org/about/blog/central-park-keeps-nyc-healthy.html>>.



Photo No. 37: Pedestrian Path, Central Park, Photo by Randy Lemoine, Flickr, 2016



Photo No. 39: Drive Path, Central Park, Central Park Conservancy Archive, 2016



Photo No. 38: Bridle Path, Central Park, Central Park Conservancy Archive, 2016



Photo No. 40: Transverse Road, Central Park, 1900-2012, New York Public Library & Central Park Conservancy Archive, 2016



Photo No. 41: Drinking Fountain a Simple Accessory in Olmsted Design for Central Park. 1981

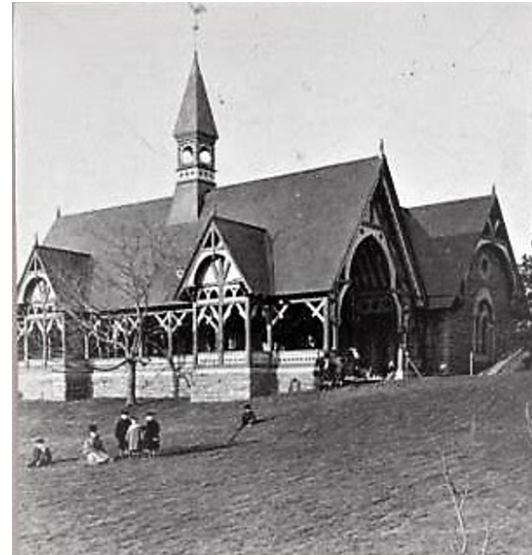


Photo No. 42: Victorian Children Gather on the Grass Outside the Dairy not long after its Completion. from the Collection of the New York Public Library-- Central Park Dairy Current Look, Photo by Brian Clark

• **VISITOR SERVICES**

For Olmsted keeping the visitors inside the park as long as possible valued. Therefore, Olmsted tried to provide possible facilities for their comfort, such as restaurants, restrooms, shelters of rain and sun, water fountains, and benches. These facilities were planned to be gorgeously detailed, frequently creative, and typically Victorian. Almost all of these nineteenth-century facilities are changed greatly, lost, or replaced by more standard modern equipment. Unfortunately, these new facilities are not relevant to the overall park design and what Olmsted desired. Among all the park facilities of Olmsted design that vanished, fortunately, the Central Park Dairy with its decorative terrace had been restored. Central Park Dairy was providing fresh milk for the New York inhabitant's kids mostly during the summer which was difficult to keep the milk fresh but now had changed its usage from a Dairy to an information center.¹⁰⁷

¹⁰⁷ B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.



Photo No. 43: Wooden Platform Under the Benches that Keeps the Ladies' Feet and Hemlines Clean, 1981



Photo No. 44: The Thatched Shelter Once Stood on the North End of the Long Meadow, Central Park. It was Lost to a Fire in 1937

- ***ARTISTICALLY COMPOSED PLANTINGS***

The principle and the first element of a park and park design is its plantation and greenery. Therefore, however, Olmsted was concerned with all aspects of his park designs, horticulture was significant for him. He designed his parks at a time when collecting exotic plants was fashionable thus he placed these in situations similar to the natural plants' environment. The result of his work can be seen in the Ramble in Central Park that had a mountain feeling and includes native vegetation.

Unfortunately, Olmsted was not a great horticulturalist and almost all of the varieties he planted in Central Park were disappeared because Olmsted was planned to apply native foliage to produce the lushness of tropical plants. But during his trip in 1863 while crossing Isthmus, Panama he wished he had seen Panama before trying to create his picturesque design in Central Park. He found the reality of the tropical lushness far from his expectation and noticed that using northern plants in New York was such a preposterous idea. According to the Central Park map of trees by Edward Sibley Barnard and Ken Chaya, over 19,600 and 170 different species of trees are in Central Park that help the dwellers for an easier breath. Construction materials such as brick, glass, and concrete make urban atmospheres hotter due to their heat-absorbing potential. Central Park with that huge amount of trees is a great air conditioner that captures air pollution, absorbs water, evaporates in the air, cooling the city, provides cleaner air, filters rainwater, and also reducing the number of toxins as long as providing the beauty of the Manhattan. Most of the specimens that Olmsted planted in Central Park were dead and disappeared by the end of the century because of their fragility

or failure to adapt to the new environment.¹⁰⁸

The attitude of Olmsted about the four subdivisions of the Romantic style carried over into his horticultural designs. Olmsted carefully composed his plantings, juxtaposing rounded forms with weeping forms, or columnar shapes with horizontal plantings, even as he carefully considered the size, color, texture, seasonal changes, and even the life expectancy of each plant. Both slow-growing species which he knew never see complete, and fast-growing species which would quickly create a gorgeous scene. He expected that many of these trees would be removed as the slower growing trees developed, but this has not usually happened in a way that damages the overall design. The planting and greenery of all of the Olmsted's park had been greatly changed now due to the death of the original plant materials and their replacements with new plantings that do not reflect Olmsted's intention. Central Park was not also an exception to this fact and has lost almost all its original plants due to the poor choice of materials and environmental stresses.¹⁰⁹

108 B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

Central Park New York City. How Central Park Keeps New York City Healthy. In: Central Park Conservancy [Online]. New York. April 2017. [Accessed: April 2017]. Available at <<http://www.centralparknyc.org/about/blog/central-park-keeps-nyc-healthy.html>>.

109 J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.



Photo No. 45: Oak Bridge Leading to the Ramble Just after its Construction and 2009

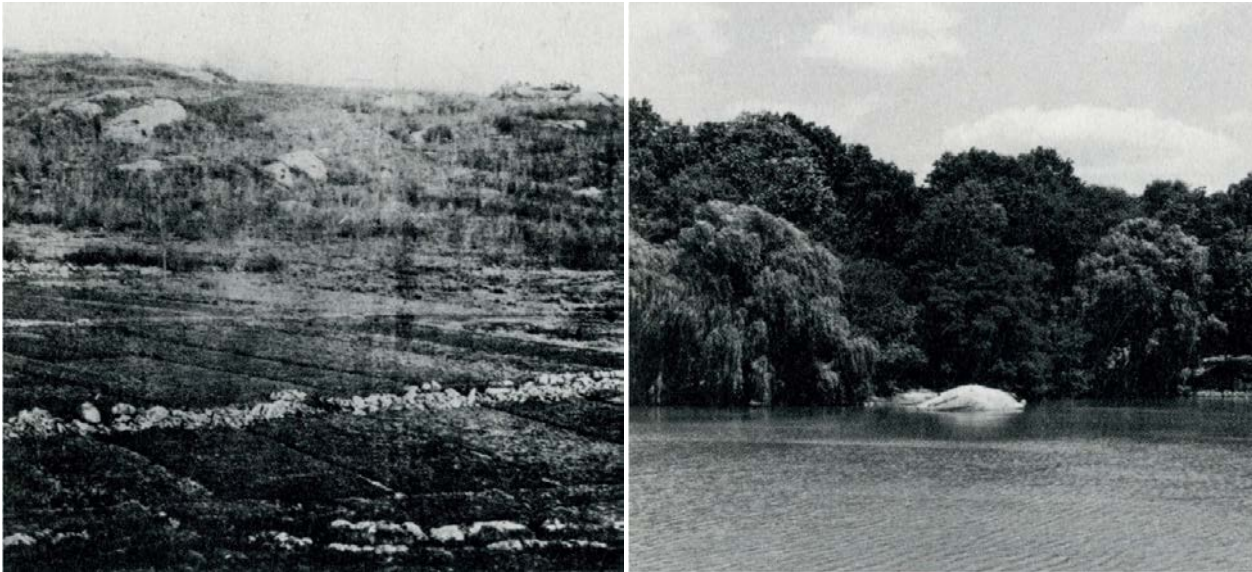


Photo No. 47: The Same Scene of the Hill and Farmland Which Changed to the Lake Several Years Later

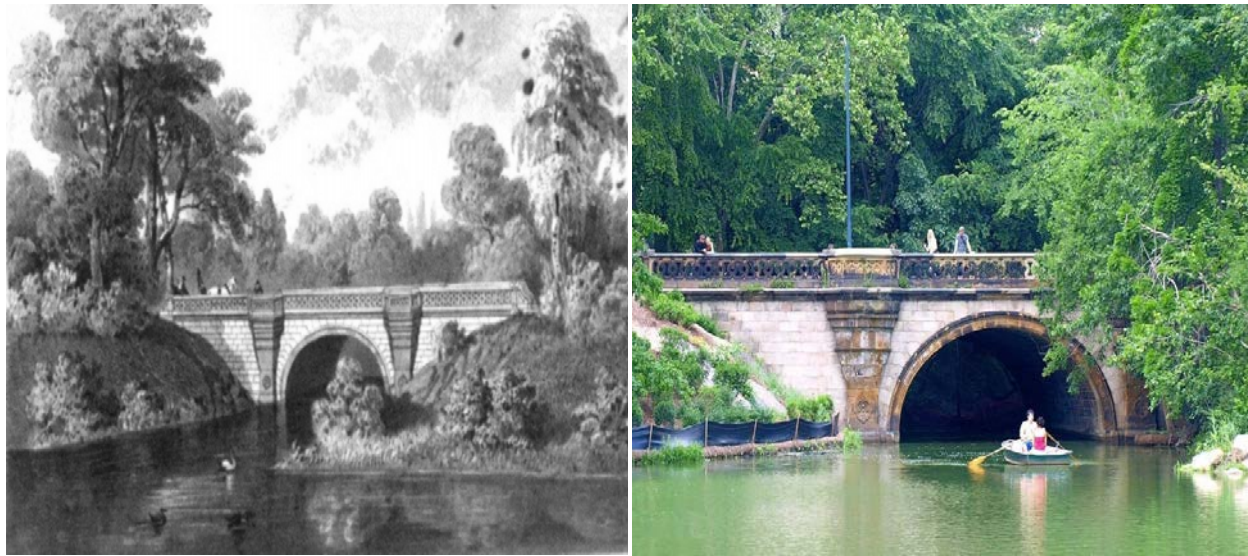


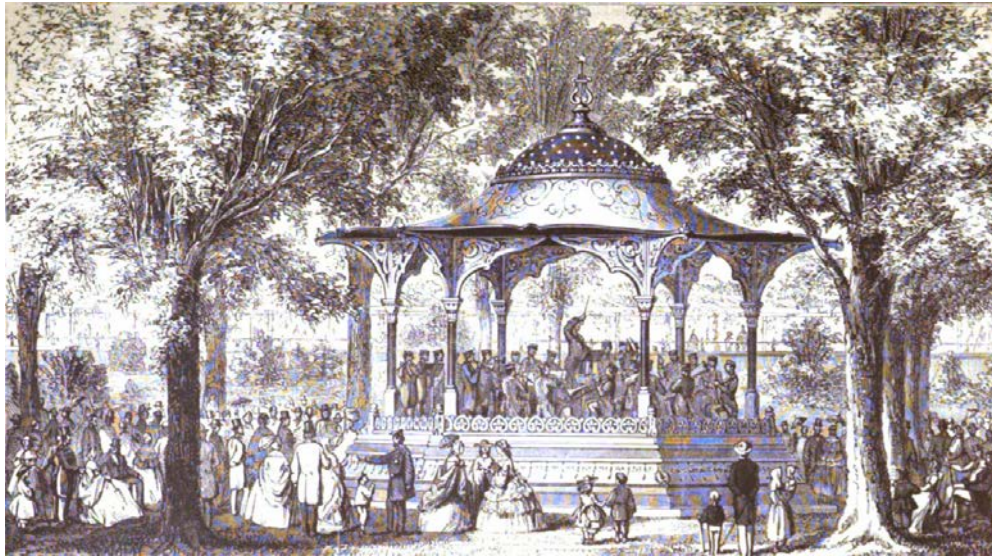
Photo No. 46: Balcony Bridge, Central Park, January 1859 and 2015



Photo No. 48: The 79th Street Transverse Road, Under Construction, 1863 and 1981



Drawing No. 42: The Spa or Mineral Springs Pavilion Served Healthful Water to Central Park Visitors



Drawing No. 43: Music Pavilion for the North end of the Mall, Designed by Jacob Wrey Mould. Fifth Annual Report of the Board of Commissioners, Published 1862

- ***THE INTEGRATION OF ARCHITECTURE INTO THE LANDSCAPE***

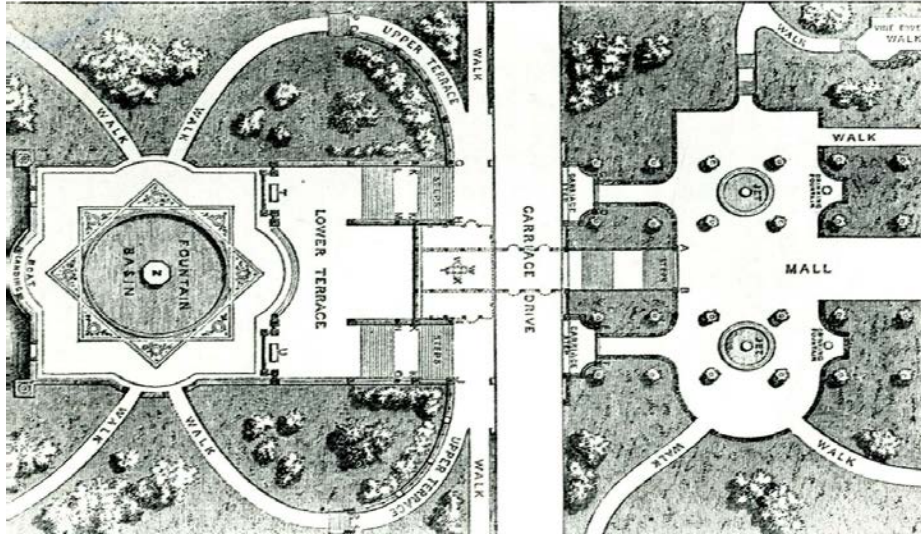
Olmsted and Vaux were using architecture in their landscape design as an aesthetic accent. It was Vaux purview and Olmsted had relatively little to say during their nine years of partnership. For Olmsted little of the architecture can be styled grand or magnificent and the goal is being to harmonize to the character of the scenery. Most of the buildings in their parks had specific functions, but there were several virgin scenics, non-functional structures like the castellated Belvedere in Central Park. Towers for observing the scenery, boathouses, diaries, and many designed rustic shelters were all common in Olmsted landscape however no two structures were similar. Vaux engaged plenty of styles that were proper to the Victorian design for a variety. The buildings were often highly attractive in a way that gives the idea of full attention to the decorative aspect. The architecture in Olmsted's Park has changed widely but the original structures have survived and also many were allowed to collapse or demolished to be replaced by easier maintain structures like brick structures. Unfortunately, the new structures were often replaced without any care to the overall landscape concepts and therefore, it ruined the complexity of meadows, lakes, and other features. The loss of Music Pavilion in Central Park which was a richly detailed, polychrome cast-iron bandstand is a real heartbreaking happening while Lasker Rink on the Harlem Meer survived, however, it is a really ugly and unsympathetic mark on a beautiful site.¹¹⁰

¹¹⁰ S. C. Miller. Central Park, An American Masterpiece. New York: Harry N. Abrams. Library of Congress, Central Park Conservancy, 2003, 255 P. ISBN 0-8109-3946-0.

J. P. Newell, M. Seymour, T. Yee, J. Renteria, T. Longcore, J. R. Wolch. "Green alley programs: Planning for a sustainable urban infrastructure?". Cities, ELSEVIER. 2013, Vol. 31, P. 144–155.



Photo No. 49: Gates Opening through the Mall from the Terrace in Central Park

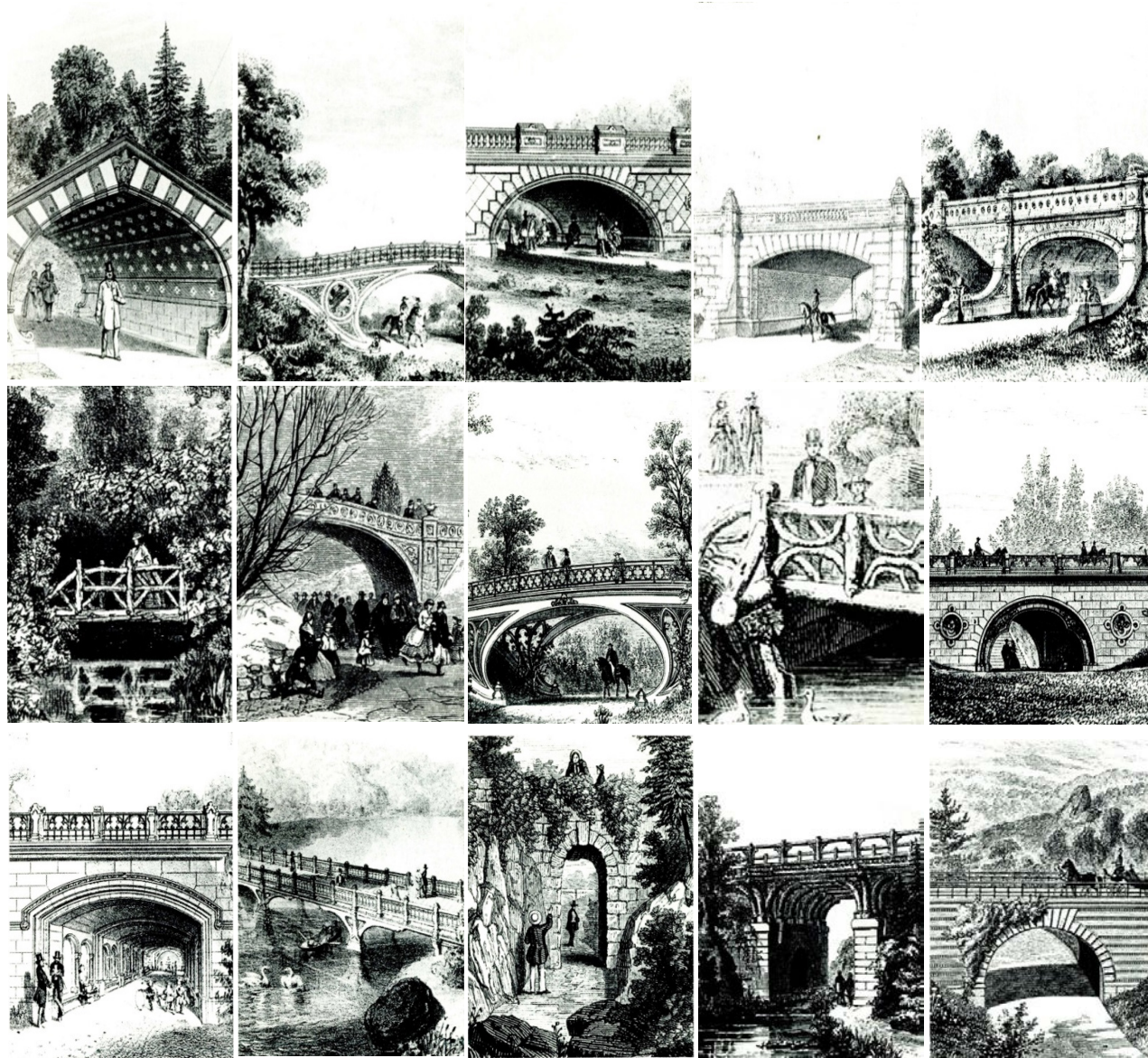


Drawing No. 44: Central Park Formal Axis, the Mall, and the Terrace

- **FORMAL ELEMENTS IN THE NATURALISTIC LANDSCAPE**

All Olmsted's landscapes contain or were intended to contain one major formal feature. These areas were designed as a meeting place for crowds, or as a stage for musical events and festivals. The Grand Promenade of Central Park is an example of these formal elements that for Olmsted was an essential element for a metropolitan park. The formal elements were often designed based on the Gardenesque aspects and served a public rather than a private function. It was a place of a shift from the controlled, structured environment and passed into the naturalistic landscape surrounding it. This use of a formal element with a formal style of architecture is a typical exodus from the English Romantic landscape design of the eighteenth century. In Central Park, the formal element is the Mall, with its straight rows of trees leading to the Terrace, the Bethesda Fountain, the Lake, and at least visually to the Belvedere.¹¹¹

¹¹¹ J. Simpson, M Ellen W. Hern. "Art of the Olmsted landscape: His works in New York City". USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.



Drawing No. 45: Variety of Bridges in Central Park

- ***VARIETY AS A DESIGN CONCEPT***

Variety is a design principle that holds the diversity of structure, rules, looks, and feels, and actually, Olmsted's design contains a remarkable diversity among the physical features in parks. For Olmsted, the park should have a variety and complexity of activities and usage that seems essential in an urban park. A great model of this diversity can be seen in the Olmsted and Vaux design of arches and bridges of Central Park. However, their functions are the same and as separating elements between the different types of traffic in Central Park but are different in design, material, and structure. All the bridges and arches in Central Park together serve actual galleries of Victoriana that are constructed of brick, cast iron, wood, marble, granite, and stone. These varieties of elements are not just limited to the arches and bridges and are obvious in every aspect of Olmsted's designs such as landscape accessories, lamps, benches, and even drinking fountains. They also extend to the vegetation, flowers, and even paving surfaces for a walk. Nowadays standardization changed this style to a norm of using only one or two types and that is the reason that Olmsted's designs stayed unique due to their afforded variety of accommodations adapted to persons of different tastes and means.¹¹²

¹¹² J. McCLUSKEY. Principles of design. Landscape Design. Edited by K. Fieldhouse, London. 1985, P. 153–158.

PPS. Project for Public Spaces. [Online]. New York, 2017. [Accessed: November 2018]. Available at< <https://www.pps.org/>>.



Photo No. 50: Ice Skating, Central Park, near Historic Dakota¹¹³ Apartment building, 1839

¹¹³ The Dakota, also known as the Dakota Apartments, is a cooperative apartment building located on the northwest corner of 72nd Street and Central Park West in the Upper West Side of the borough of Manhattan in New York City, United States. The Dakota was constructed between October 25, 1880, and October 27, 1884. Henry Janeway Hardenbergh's architectural firm was commissioned to create the design for Edward Cabot Clark, head of the Singer Manufacturing Company. The building purportedly was named The Dakota because at the time of its construction, the area was sparsely inhabited and considered remote from the inhabited area of Manhattan, just as the Dakota Territory was considered remote. The earliest appearance of this story, however, was in a 1933 newspaper interview with The Dakota's long-time manager. Christopher Gray's book *New York Streetscapes* quotes the interaction thus: "Probably it was called 'Dakota' because it was so far west and so far north". Gray believed that the building's name stemmed from Clark's fondness for the names of the new western states and territories. The Dakota was designated a New York City Landmark in 1969. The building was added to the National Register of Historic Places in 1972, and was designated as a National Historic Landmark in 1976. The building's facade was renovated in 2015

- **RECREATION**

The experience of sympathy with nature is the main form of recreation in the eye of Olmsted. Olmsted provision of naturalistic parks in the urban environments became the purpose of his work due to the lack of readable nature in the urban area. It is sometimes derived from his belief in the positive effects of expecting nature that Olmsted intended his landscapes, especially for passive recreation. Passive recreations refer to recreational activities that do not require equipped facilities like sports fields or pavilions.¹¹⁴

Passive recreational activities place minimal stress on a site's resources and as a result, they can provide ecosystem service benefits and are highly compatible with natural resource protection. Biking, running, bird watching, boating, hunting, walking, etc. are just some examples of passive recreations. On the contrary, active recreation refers to a structured individual or team activity that requires the use of special facilities, courses, fields, or equipment such as football or skiing. However, active recreation and passive recreation refer to different types of activities; both types of activities can be located together effectively. Soccer fields, for example, may share parking facilities with an adjacent natural area that provides biking, camping, and rock climbing opportunities.¹¹⁵

While Olmsted and Vaux's landscapes were intended for both passive and active recreation, a division should be made between the types of recreation. Olmsted envisioned specific

¹¹⁴ Central Park NYC. Central Park Conservancy, Central to the park. History [Online]. New York. 2014 [Accessed: February 2015]. Available at <<http://www.centralparknyc.org/about/history.html>>.

¹¹⁵ B. Kelly, G.T. Guillet, M.E.W.Heren. *Art of the Olmsted Landscape*. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.



Drawing No. 46: Model Boating, Conservatory Water, Central Park, 1907

activities that have developed later. Olmsted proposed the recreational activities to be democratic in a way that each visitor should be able to use the park as they wish, as long they want and without exceeding upon the use or enjoyments of others or cause damage to the park. Therefore, the recreational activities of facilities that were fenced and charge admission were opposing Olmsted's belief because he wished the park to be free and open to all.¹¹⁶

Central Park was to be the actual and symbolic beginning of Fredrick Law Olmsted as a landscape architect and the beginning of the park movement in America. With the Central Park project and then with the Greensward design, urban land with attention to the art, engineering, and management would be transformed into a rural experience, a reservation of spiritually inspiring aesthetic pleasure. Olmsted's conception of physical form as a function of social planning was perhaps his important involvement. He was a social critic and theorist before becoming a professional planner and designer. Olmsted's way of design was responsive to social needs and was drawn from a variety of intelligent disciplines. In general, Olmsted's work was the formal expression of a belief in a self-regulating society.¹¹⁷

¹¹⁶ B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

Central Park NYC. Central Park Conservancy, Central to the park. History [Online]. New York. 2014 [Accessed: February 2015]. Available at <<http://www.centralparknyc.org/about/history.html>>.

¹¹⁷ C. Tilley. "A Phenomenology of Landscape: Places, Paths and Monuments". 1st Edition. USA: Berg Publishers, 1994, ISBN 978-1859730768.

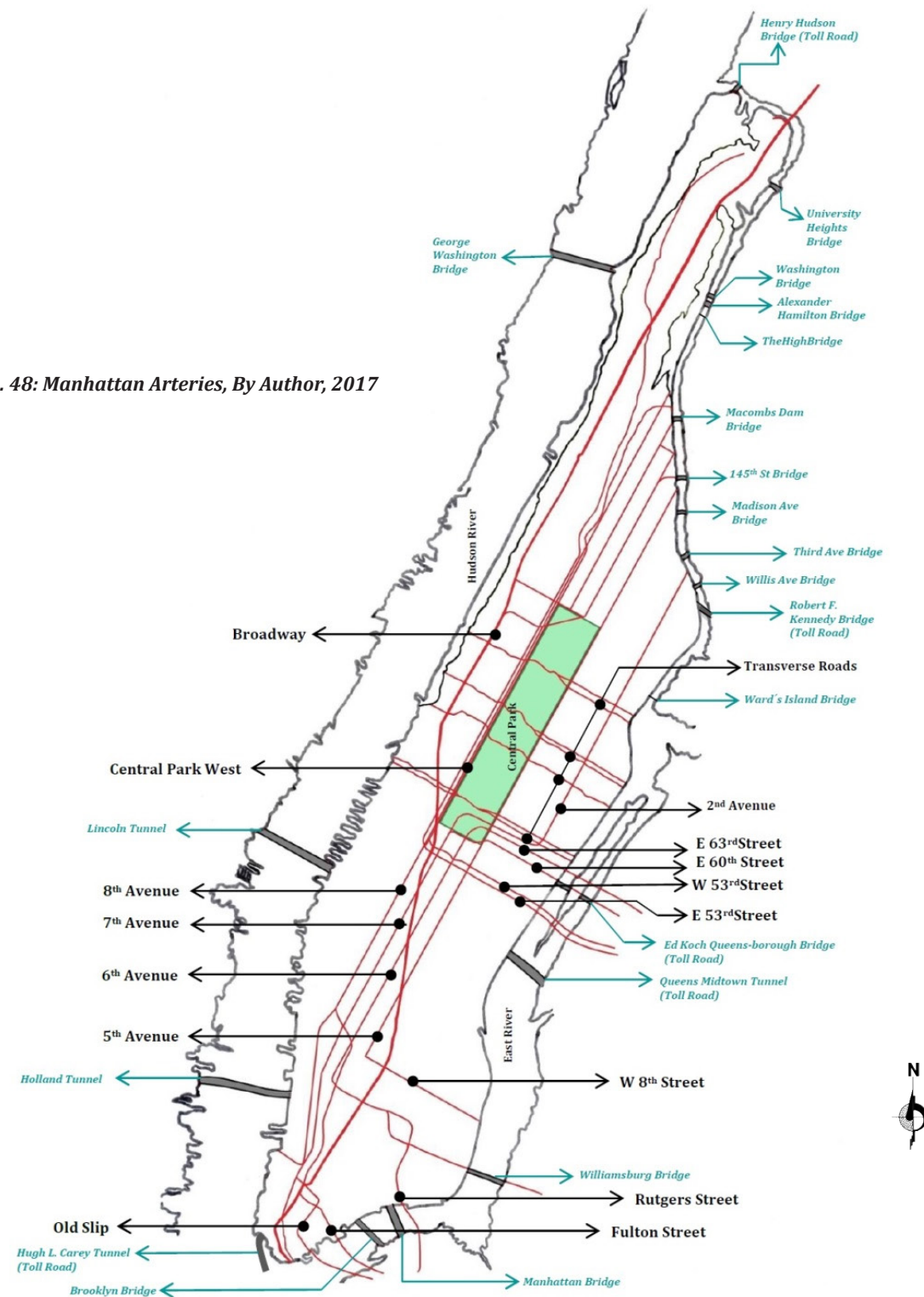
B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

Central Park NYC. Central Park Conservancy, Central to the park. History [Online]. New York. 2014 [Accessed: February 2015]. Available at <<http://www.centralparknyc.org/about/history.html>>.



Drawing No. 47: Super view Map and Guide of Manhattan, By Samuel Freedman, 1934

Drawing No. 48: Manhattan Arteries, By Author, 2017



CROSSING CENTRAL PARK

Studying on Central Park's Function and purpose of creating synergy between research and design was interesting reasons for picking "Literature" contains books, publications, Web-pages, and "Graphics" contains the documentary, drawings, collage, and pictures as the most appropriate analyzing methodologies here. Conjugation of Graphic discoveries with literature's support helps to focus on very tinny details of the study area. Redrawing the study area clarifies many hidden features that lead the research to bring up precious results. Consequently, the work started with graphical studying on Manhattan Island's map and highlighting the main streets. It helps to discern Manhattan's arteries which are in strong and dominant connection with Central Park and demonstrate their impression on park use and the whole metropolitan. Once the city's arteries were identified then initiated redrawing other traffic lines of Central Park one by one, studying their role in the park and metropolitan and detecting their hidden patterns. Numerous precious discoveries derived from graphics and specially redrawing that, with a confederation of literature made the research reliable and ensures that the attitude has not been reviewed earlier.

Manhattan Arteries in this paper refers to the network that connects Central Park to the whole island. Also, it connects the geographical directions of the city while passing through Central Park in the middle as an important city's power supply. In this drawing Manhattan, arteries are shaped from the overlap between the streets' traffic domain and public transportation network surrounded Central Park and to support the island's activities and accessibilities.



Photo No. 51: The Desert on the Location of Central Park Changed to a Man-Made Earth Sculpture by Olmsted, Look from Park Avenue Possibly Around 94th or 95th Street to the Northwest, 1885

Literary methodology and graphical analysis directed the research to get closer to its objectives and achieve an overview of the role of Central Park in keeping Manhattan Island active. The morphological structure of Central Park came out through the redrawn plans; provide the temptation of studying the ever-changing features of Central Park and its impression on creating an active or dynamic city.

If you imagine yourself one million years ago at the current position of Central Park, then you would find yourself standing on a vast and thick ice sheet with glacial walls around. Back in the 1850s, Fredrick Law Olmsted and Calvert Vaux considered that glacial result along with its geological profile. Therefore, they found the site topography as a serious and important element to study on.¹¹⁸

As far as mentioned before, Central Park is a great man-made sculpture in which Olmsted used the picturesque style for its design to create a natural romantic landscape. But actually, after redrawing the plans the research arrived at this point that however picturesque style may seem a simple feature in designing Central Park but it is more complicated and serious that even forms the whole concept, design, and implementation of the area. Olmsted believed that finally, the time will come that New York will be completely built up and all the grading and filling will be done and no picturesquely varied rocky formation of the island remains because they all have been converted into rows of straight street and piles of buildings. Then the priceless value of picturesque landscape will be more distinctively apparent and its

¹¹⁸ R. Smithson. "Robert Smithson: The Collected Writings". Edited by J. Flam. Berkeley-Los Angeles-London. University of California Press. 1996, 393P, ISBN 0-520-203852.

purpose will be fully recognized.¹¹⁹

Olmsted point of view in landscape design was coming from England and mostly found in the landscape designer Uvedale Price and writer-artist William Gilpin's theories. He was trying to add the English asymmetrical landscapes of landscape designer Uvedale Price in the middle of the urban flux in Manhattan and Brooklyn.¹²⁰

In the theory of Landscape designer Uvedale Price, he tried to extend the idea of Sublime and Beautiful to a point that goes to put the landscape into a more liberal sense and make them free from picture gardens. The Picturesque was defined for Price more specifically as being located between the beautiful and the sublime. He preferred to not eliminate all the site elements like old trees, textured slopes, etc. but keep them as it was and then add more details. He believed that the Beautiful is contradicted with the classical form of symmetry appearance. Symmetry is coming from the Greek word “Symetria” which is composed of “syn” that means together and “metron” that means to measure. Therefore, it reveals a harmony between the parts of an object and the way of a combination of several parts. Price was arguing for using the symmetry in a fashion way (close to its real meaning as making harmony) of using less formal shapes in landscaping.¹²¹

119 F. L. Olmsted. “Forty Years of Landscape Architecture: Central Park”. Edited by T. Kimball. 1st Edition. United States, MIT Press. 1973, 575P, ISBN 0262150093.

120 Sir Uvedale Price, 1st Baronet, (born 1747—died Sept. 14, 1829, Foxley, Herefordshire, Eng.), British landscape designer and, with the writer-artist William Gilpin and Richard Payne Knight, one of the chief aestheticians of the Picturesque movement in landscaping. Price’s work influenced landscape gardeners such as John Claudius Loudon who is the designer of the Derby Arboretum Park, where Olmsted visited in his travel to England and got its concept for designing Central Park

121 R. Smithson. “Robert Smithson: The Collected Writings”. Edited by J. Flam. Berkeley-Los Angeles-London. University of California Press. 1996, 393P, ISBN 0-520-203852.

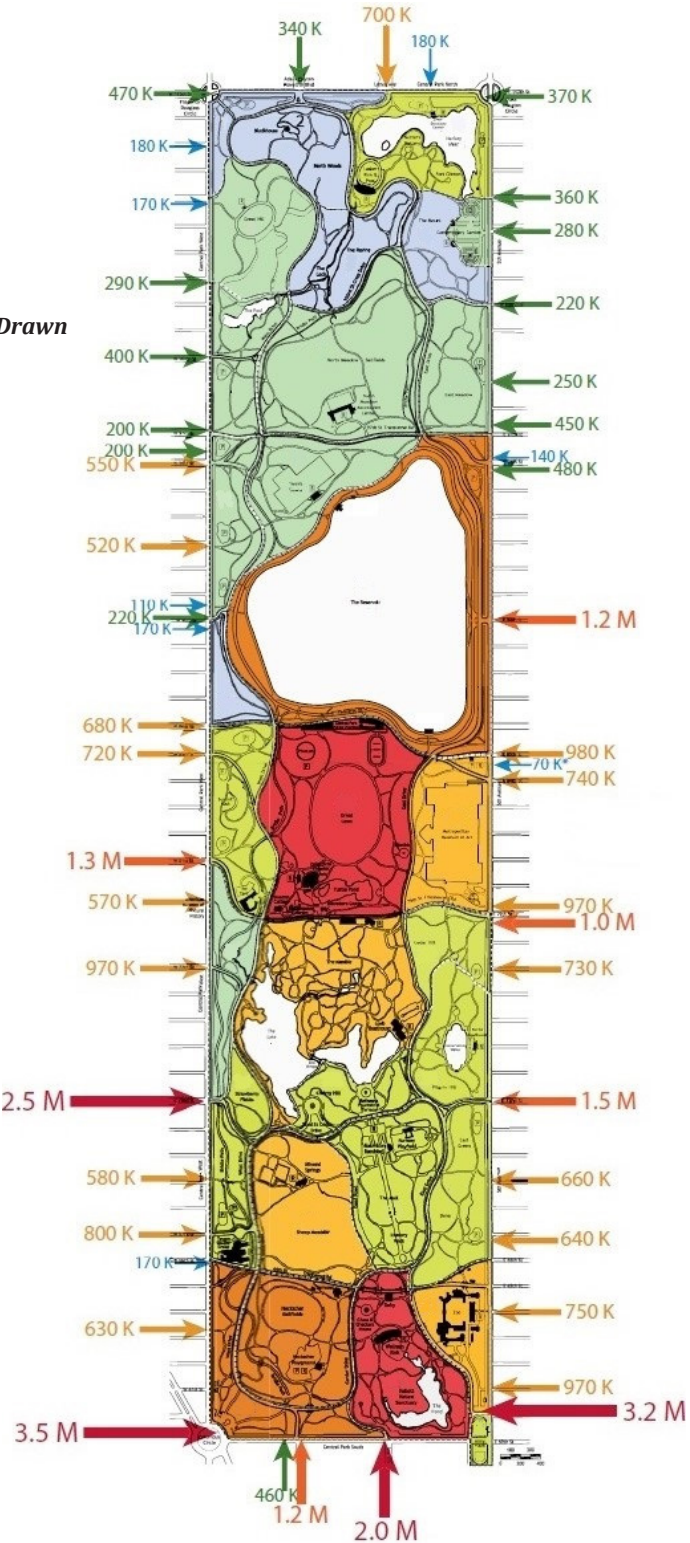
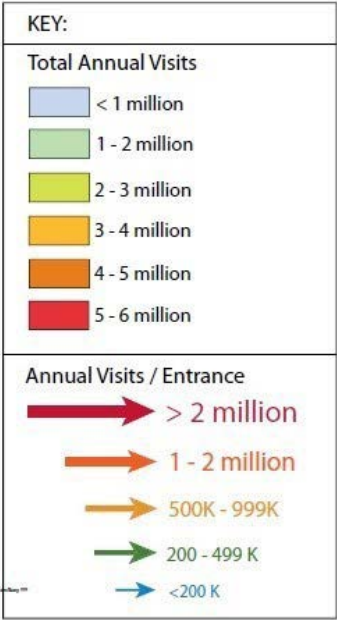
Besides, for Olmsted, picturesque was an antithesis of terror, solitude, and vastness of nature. However, he used the informal shapes, modern, natural, rococo and English style features of picturesque in his design for Central Park but, he also believed that Europe could not be a model for American designers and they must have something better because their parks are for all phases of society. Hence, he used the Hegelian Ideal as long as picturesque method and became the forerunner of dialectical materialism applied to the physical landscape. According to the Hegelian Ideal, dialectic refers to the contrast as the basis of nature and creatures that without that contradiction everything would be just fixed, unchangeable, and stationary. Olmsted used dialectic as a way of seeing things in a manifold of relations and not as isolated objects.¹²²

Here it is that the reason for integrating Central Park into the city clarifies that it is not just because of its size and location, but it is also because of the philosophy that Olmsted was following. The integration of Central Park into the Manhattan Island grid made it a new model different from European examples and provides a space accessible for everyone in society. Furthermore, it creates a contradiction between the rigid grid of Manhattan and the flexible and free planning of Central Park.

Olmsted equipped Central Park with about 50 entrances around the perimeter of it and provides the opportunity for the dwellers to have access to the greatest void in the heart of the city. Different irregular but still regular pathways also provide this chance for the public to move all over the park systematically and freely and enjoy in their way.

122 National Association for Olmsted Parks. Olmsted, His essential theory. [Online]. Washington D.C. Fall 2000. [Accessed: May 2019]. Available at: < <http://www.olmsted.org/index.php>>.

Drawing No. 49: Annual Visit by Zone and Entrance, Drawn by Central Park Conservancy, New York, 2011



Olmsted designed the first separated transportation system in the American landscape and also tried to emphasize the sanitary influence of his style of design on users. Olmsted believed that attention to deep human desires and applies it in the art in a subtle way should underlie all types of arts to avoid just simply create a decoration. In designing Central Park he tried to meet the needs of the habitats to nature but in a way that the visitors do not see the details as they look (a tree not just as a tree) but as a warp and woof of a complex. In this case, he used step designing or layering design techniques to integrate and connect different elements and parts together and to the city.

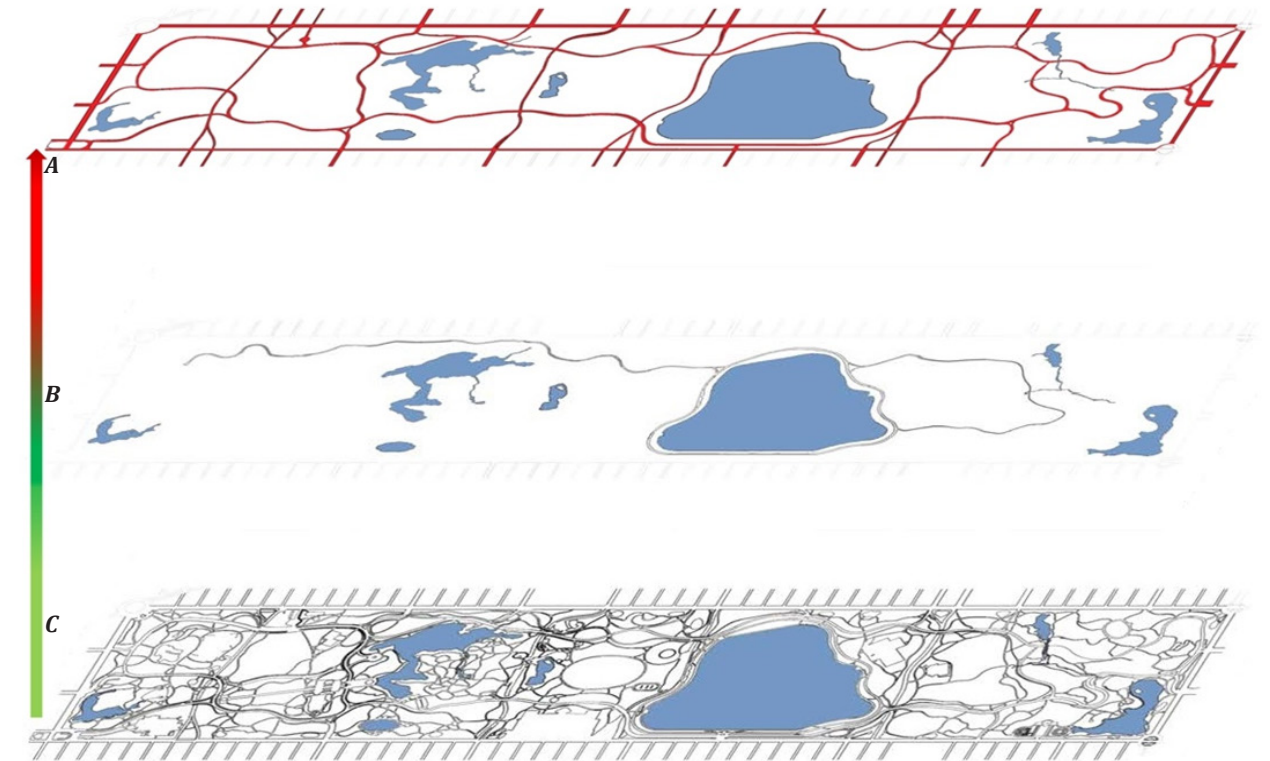
One example of this layering design in Central Park is about planting its vegetation. Olmsted asked for a system of planting one layer upon the other and started with ground cover plants, then added shrubs and planted trees above them, and at the end covered the trunks and branches of the deciduous trees with moss to keep them look green during the winter.¹²³

Another unique example of the layering design method is related to the Central Park transportation routes. If we study Central Park from the perspective of the dialectical landscape design method then we reach this point that actually, the layering method which had been applied to the transportation routes of Central Park is based on the “Route Speeds” and their relations. Then, we could find out three different layers as high, medium, and low-speed layers that are shown in the following Drawings available on the next pages.

123 National Association for Olmsted Parks. Olmsted, His essential theory. [Online]. Washington D.C. Fall 2000. [Accessed: May 2019]. Available at: < <http://www.olmsted.org/index.php>>.

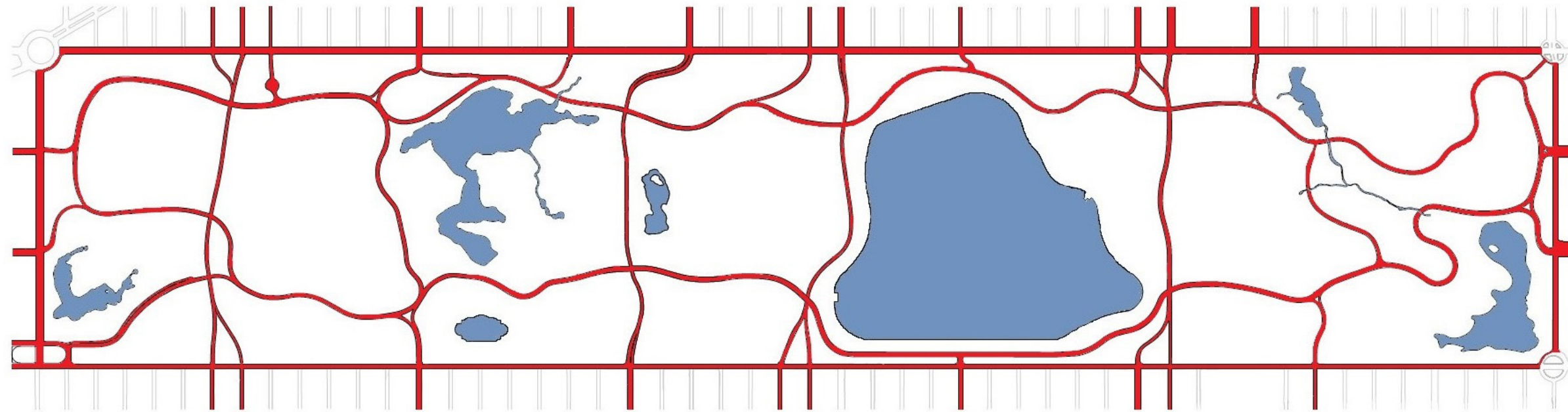


Photo No. 52: Three Examples of Trees Available in Central Park Planted with Layering Method, 2018



Drawing No. 50: Transportation Layers of Central Park Classified by their Speeds, By Author, 2019

A: High-Speed (Drive Path), B: Medium Speed (Bridle Path), C: Low-Speed (Pedestrian Path)



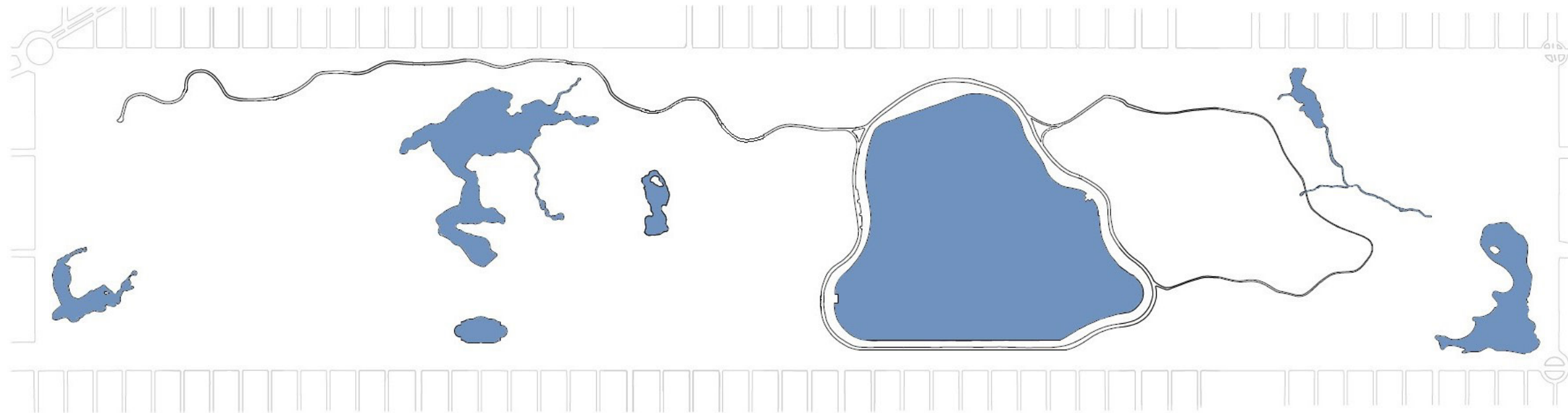
Drawing No. 51: High-Speed Layer of Central Park, Drive Path, Re-Drawn by Author, 2017

The current Drawing shows the drive path of Central Park which has been assumed as the high-speed layer and its connection with the urban grid of surrounded streets. Studying on this Drawing according to the method that Olmsted was following clarifies the features of having a picturesque and dialectical landscape.

He designed the drive path or in another word high-speed path for Central Park because he was not trying to ban the access of the riders and vehicles to the area since it was contradictory with his concept for a dialectic landscape that is against creating an isolated area.

Moreover, aside from the huge size and central location of the area, for creating a harmony that is an important feature of picturesque, he needs to think of the park high-speed access transversely as long as longitudinally. But he also believed that responding to the users' desires should be in a subtle way, therefore the sunken transversal roads had been designed for subtle support of the driver's transversal access and also the concept of harmony and dialectic between the east and west part of the park. As long as keeping the continuous rural feels in the whole area and not to stop it with urban traffic passing transversally.

Drive path of Central Park can be assumed as the main arteries of the space which keeps the area very well connected to the surrounding and even the whole urban traffics and also support the liberty of the space.

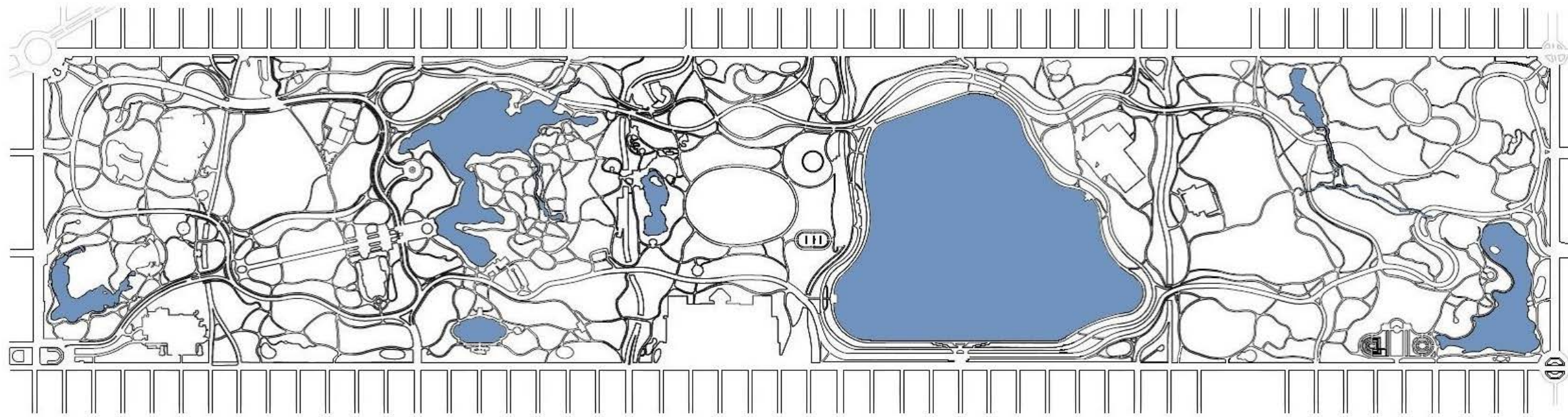


Drawing No. 52: Medium-Speed Layer of Central Park, Bridle Path, Re-Drawn by Author, 2017

The current Drawing belongs to the horse path or bridlepath with 4.2 miles long that assumed as a medium speed transportation layer in Central Park.

As far as mentioned before Olmsted designed the transportation system of Central Park with a great emphasis on the sanitary influence of his design on the users. His concept appeared clearly in his bridle path which is specially reserved for horseback riding, walking, and jogging and there are no bikes and cars and at his moment carriages allowed to move in. It plays an important role in the sanitary aspect of the users and brings tranquility. It is a nice path for athletes, horseback riders to gallop, and joggers, which is unique in the whole park as well as the whole city. Unlike the rest of the layers, this layer has no connection to the urban traffic to create a unique and safe thoroughfare inside the park. It designed especially for recreation and provide the opportunity of disconnecting from the harsh urban area inside the urban area for the users.

According to the current Drawing, the bridle path started in the west part of the park and continued around the reservoir, following a round way in the northern part. Olmsted did not consider any bridle path in the southeastern part of the park because he wanted to keep the balance in the whole area due to his perspective about the future. According to Drawing No. 49 that shows the annual visit, it is clear that the north and west part of the park is following a less visitant and Olmsted was aware of that. Therefore, he designed a bridle path in a way to keep the harmony and balance of the park as much as possible and not losing the picturesque and dialectic feature of his design.



Drawing No. 53: Low-Speed Layer of Central Park, Pedestrian Path, Re-Drawn by Author, 2017

The current Drawing belongs to the final layer of the transportation system in Central Park that is the pedestrian path and we assumed as a low-speed layer.

Olmsted connected this layer to the urban pedestrian path by equipping the park with about 50 entrances to surround it. However, it is connected to the city's pedestrian routes but is not following the same rectangular rigid grid model. Olmsted designed the pedestrian lane in a completely informal network model that has access to the whole park freely and at the same time systematically. He was trying to keep the relation of different parts of the park together and also to the city in a very smart way (By limiting the entrances) and also improves the sense of picturesque.

One of the features of having a picturesque landscape is to guide the visitors by implementing components to improve the curiosity of the users. Olmsted by providing designed sequential vistas and follies along the pedestrian lane provide a unique picturesque experience of nature in the heart of a rigid urban grid. Therefore, he succeeds to keep the visitors in the park for a longer time to enjoy and at the same time and way, also persuade the sanitary aspect of his design.



Drawing No. 54: View of Central Park, 1860, Library of Congress Archive

For Olmsted who was the forerunner of the dialectic landscape, it was important to create things that help each other for creating unity. Because he believed however things are different and maybe in contradiction but the end, they are serving a unity. He designed Central Park based on his concept for having a dialectic and picturesque landscape and therefore, it was important for him to create a space not just for his time and also for the future. He even was aware that maybe in the future the streets which are surrounded by Central Park are occupied by the wealthy class of the society. But he also believed that however, those rich ones can enjoy Central Park from the windows of their apartments the rest of the society can enjoy the park by getting into it. Olmsted tried to increase the perspective effect, mystery sense, and contradiction aspect of his design, which was so important for him, by using curvilinear pathways which were and still are unique in the whole Manhattan area. He used sunken transversal roads and also about 36 bridges in the park to create a dark and light or shadows and light contrast inside the area in a subtle way. For him, Central Park was a void that needed to be filled by completely artificially natural elements. A hundred times of redrawing the plans of Central Park in this thesis makes Olmsted's concept for creating a picturesque dialectical landscape more visible and the harmony in his design appeared clearly. He designed ponds, lakes, and reservoir firstly for improving the sense of having a void in the area and at the same time improves the sense of rural space as long as achieving a picturesque scenic which is contradictory with the hilly and rigid ground of the park and also the whole urban area. And finally, the result of using the dialectic method in Olmsted's designs was that his parks exist before they are finished, which means, his parks never finished and therefore, keeps the whole city live and active for an ongoing project.



Drawing No. 55: Central Park Looking South, 1859, Museum of the City of New York



Photo No. 53: Willowdale Bridge, near the Mall and Balto. Left to right: Andrew Haswell Green, George Waring Jr., Calvert Vaux, Ignaz Anton Pilat, Jacob Wrey Mould, Frederick Law Olmsted, Photo by Victor Prevost, 1862

3.1. KEVIN LYNCH AND THE GREEN PATTERN IN A BUILT CITY

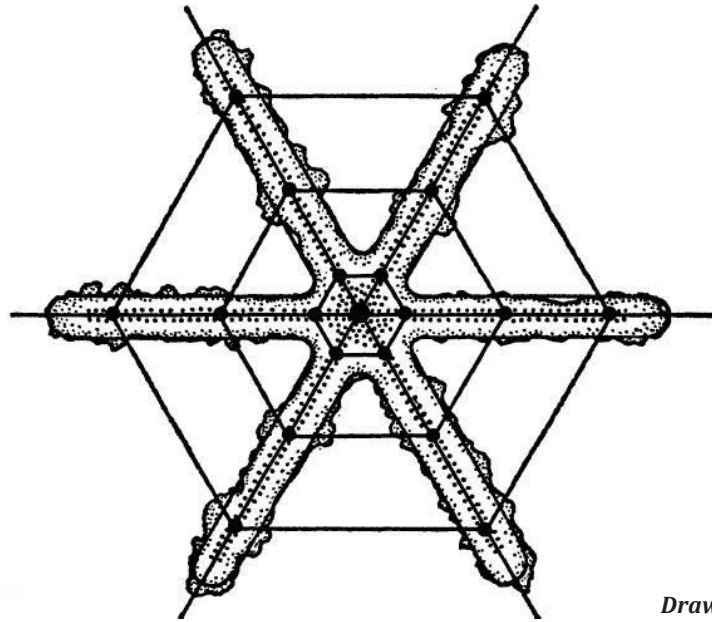
First of all, studying the cities is an important factor because at least since the industrial revolution people have been moving to search for opportunities and encouragement. The urbanization or moving of the people into the urban areas and cities is clear from a few statistical reports. Actually, in 1800 only 3% of the world's population were living in the cities but by 1900 this number increased to 14% and passed 50% in 2008. It is also expected to arrive at 70% by 2050.¹²⁴

However, urbanization is important but we have to notice that cities are not just dense clusters of people but includes dense clusters of human activities and desires too. Therefore, cities are not just where the people are today and are where the majority of human activities have always been. Consequently, the pattern of urban development is important and has a critical effect on forming the activities of the inhabitants and also urban problems such as circulation systems, location of activities, and also spacing of the buildings. According to Kevin Lynch, three important factors are critical in the form of the metropolis once its total size is known as scale and pattern of structural density and condition, circulation system of persons and pathways in all sort in the field of capacity, type and pattern, and finally the location of fixed activities such as parks, museums, shopping malls and like.¹²⁵

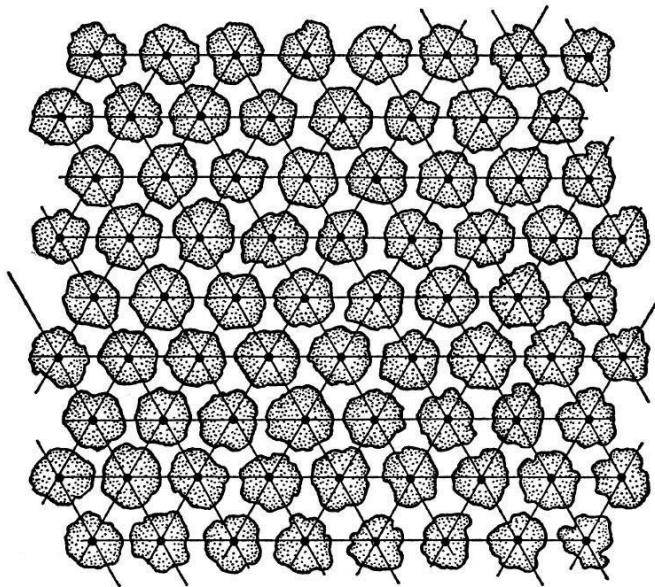
Nowadays metropolitan areas are not suitable environments for living due to their

124 Z. P. Nael. "The Connected City: How Networks Are Shaping the Modern Metropolis". Edited by A. Orum. 1st edition. New York. Routledge, 2013, 57P, ISBN: 978-0-415-88141-8.

125 K. Lynch. "The Pattern of the Metropolis, Daedalus: The Future Metropolis". [Online]. MIT Press, 1961, Vol. 90, No. 1, P. 79-98. [Accessed: November 2019]. Available at <[http:// www.jstor.org/stable/20026641](http://www.jstor.org/stable/20026641)>.



Drawing No. 56: The Urban Star Model, Kevin Lynch



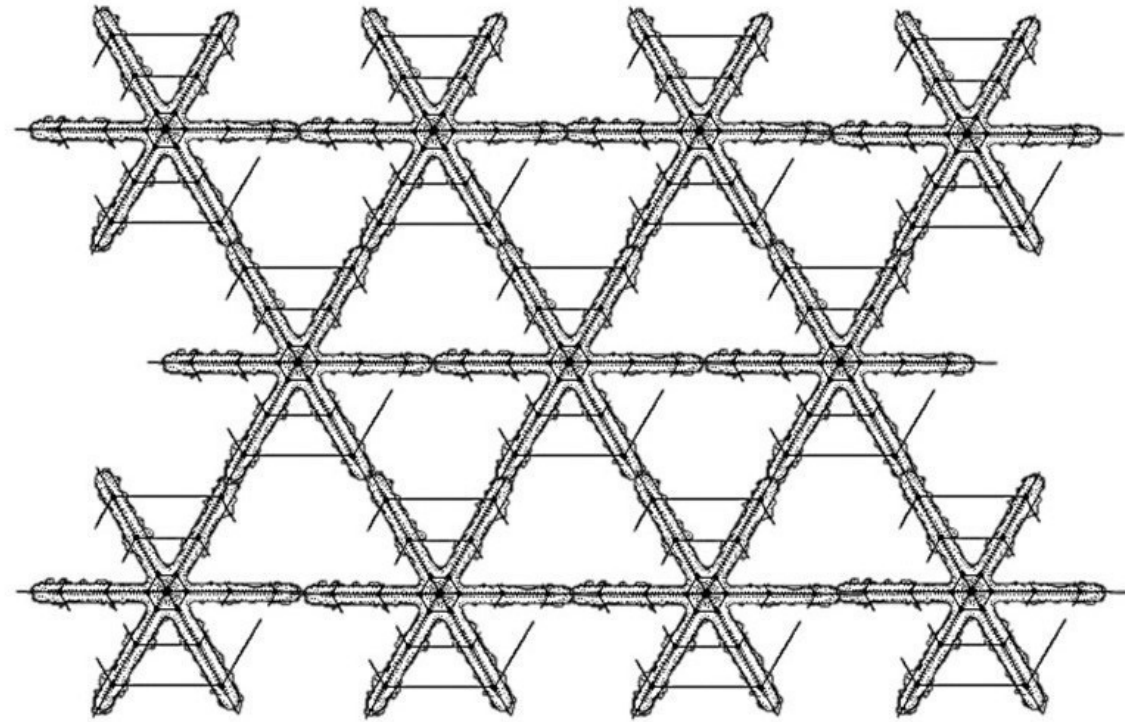
Drawing No. 57: The Urban Galaxy Model, Kevin Lynch

uncontrolled developments, congested circulation, and unbalanced use of facilities. This unstable and unbalanced pattern of activities results in a visually characterless and confusing city as well as a noisy and uncomfortable living environment. Despite all the problems that urban areas are facing but the desire of living in cities is increasing every day, in this case, Kevin Lynch recommended five different models of urban pattern to realize greatly the potential of the metropolitan life as, the dispersed sheet, the galaxy of settlements, the core city, the urban star and the ring.¹²⁶

According to the purpose of this thesis, this research is going to go deeper on the urban star and the galaxy of settlements as two selected and more suitable models of the urban pattern.

The urban star model will preserve the central core without an extreme change to the compact city. Thus the current densities will be preserved or maybe reviewed upward a little while the development of the lower densities at the urban fringe would be no longer permitted. Therefore, it results in a combination of open lands into the metropolitan area and the creation of a density pattern that is star-shaped in the central region and linear at the fringes. The development of the lines would be along the radius of the center and arrives in metropolitan centers and creates linear cities between the main centers. Thus, the metropolitan center which is located at the center of the star will follow more intensive activities and facilities while they would be carried on along the main radials and serves lower intensive levels. This model will serve an efficient public transportation system along the main radials

¹²⁶ K. Lynch. "The Pattern of the Metropolis, Daedalus: The Future Metropolis". [Online]. MIT Press, 1961, Vol. 90, No. 1, P. 79-98. [Accessed: November 2019]. Available at <<http://www.jstor.org/stable/20026641>>.



Drawing No. 58: Star Galaxy Model as a Suggested Model for Metropolitan Urban Parks and Greenery Systems, By Author, 2019

while using individual vehicles is possible in the other directions.

The urban galaxy model will let the development to be gathered into quite small units with an internal peak density in each of them that gets separated from the other one by low or zero structural densities zone. Therefore, the land occupied by the whole metropolis in this urban model would increase proportionately and the separation between urban units could vary from far to near due to the transportation system. The dispersion of city activities could be concentrated at the city peaks in each urban unit and therefore, creating a system of centers that are quite equivalent in importance to the others. These urban centers could be balanced in the activities or even each serves a special activity. The galaxy urban pattern will improve general communication, and unplanned communication, through creating centers of activity. However, the factor of time distance would be the negative point of this model but on the other side, people could work and shop in the clusters that are living and become quite independent concerning commutation. It also provides a wide range of choices and greater accessibility to open lands between the clusters.¹²⁷

According to the concept of urban park that was described in the previous chapters and also objectives of this research one important aspect of the urban park is related to its pattern in the current metropolitans and urban areas. Therefore, the current research used the idea of Kevin Lynch about urban patterns and implement them to the current urban fabrics as a planned pattern for urban greenery of the metropolitans. In other words, here we use urban pattern ideas for the urban greenery pattern of the current metropolitans in general terms

¹²⁷ K. Lynch. "The Pattern of the Metropolis, Daedalus: The Future Metropolis". [Online]. MIT Press, 1961, Vol. 90, No. 1, P. 79-98. [Accessed: November 2019]. Available at <<http://www.jstor.org/stable/20026641>>.

to achieve the best dispersion of park systems. Based on the concept of an urban park, an urban park is an urban area inside the urban area. Therefore, it is important to create a model for it that can be implemented in different metropolitans apart from their urban fabrics model.

It is not hidden to anyone that having just one city center with the highest densities of facilities and activities than other parts of the city is not affordable in the current metropolitan area. However, it is not possible to change the urban patterns of the currently built metropolitans but it is possible to change the spreading of facilities and greenery based on a new model that meets the requirements of the residents. According to the criteria that the galaxy and star shape urban model are following, this research is suggesting a new model and call it “Star Galaxy Model” which has been created by the combination of the urban galaxy and urban star model and aimed to be the suitable model for our purposed urban park. Star Galaxy model which is demonstrated on Drawing No. 58 would meet the green core of our purposed urban park in the city center with the arms stretched along the main roads of the metropolitan in a star shape and run into the other center of the city.

Moreover, the number of main arms of the Star Galaxy model can increase or decrease due to the main roads which are available around the periphery of the center. But the schematic view of the whole pattern would follow the same structure and try to consonant with the characteristics and requirements of the targeted urban area.

• **CHARACTERISTICS OF THE CONTEMPORARY METROPOLIS**

The general concept of a contemporary metropolitan area is a core area containing a large population center, together with contiguous communities that have a large concentration of economic activities and social integration. It transports millions of people each day between their residence and works place while being connected with the core.¹²⁸

According to the facilities and importance of the metropolitan areas in the current era, most of the people and especially youth are likely to leave their hometown and continue living, working, and studying in the metropolitans. Therefore, it is important to increase the capability of the metropolitan area and create a space that meets the needs of residents while providing a healthy environment of living. Recently experts are trying to control the spread of suburban sprawl and create urban areas that are developed more purposefully. This is known as the smart growth of metropolitans that works to provide communities designed for pedestrians and improve less car dependency.¹²⁹

Besides, to meet the needs of urban dwellers, a modern metropolis should follow some characteristics and elements that respond to the desires of inhabitants while gave shape and meaning to the urban form. Based on the objectives of this thesis, it is going to go deeper on three of the most important characteristic that a modern metropolis should follow as the concept of decentralization, pedestrianization, and healthy mobility in the metropolitans

¹²⁸ H. A. Scarr. Geographic Areas Reference Manual. US Department of Commerce. Economic and Statistics Administrations. BUREAU of the CENSUS. 1994, 55P.

¹²⁹ National Geographic. “Urban Area: An Urban Area is the Region Surrounding a City”. Geography, Human Geography, Social Studies. U.S. History. World History. [Online]. 2019. [Accessed: October 2019]. Available at:< <https://www.national-geographic.org/encyclopedia/urban-area/>>.

and promote urban greenery system.

Furthermore, a new form of city network is essential in the metropolitans of the 21st century which is created by the grouping of urban, suburban, and rural areas elements together. Therefore, in the new city, unlike the old city that had a defined periphery and city center, there is no defined center and actually, everything is defined by time and desires rather than the place. Also, a quick review of the literature shows that there is no common definition or understanding of decentralization.¹³⁰

Generally, Decentralization means different things to different people, and it is primarily a function of the application. Therefore, the term ‘Urban Decentralization’ can be defined as the form of the exodus of the residential population from central areas to the periphery of the cities. It will result in breaking-up the metropolitan into small communities that connected and work together for a single goal and form the whole metropolitan. In another word, decentralization is a system of planned co-responsibility between different communities of a head center that results in increasing the overall quality and effectiveness of a system while improving the capacities of each community.¹³¹

Moreover, this fact is important that decentralization is not an alternative to centralization

130 R. Fishman. “Metropolis Unbound: The New City of the Twentieth Century”. Flux, 1990, No. 1, P. 43-55. [Online]. Available at: < <https://doi.org/10.3406/flux.1990.1172>>.

131 UNDP. United Nations Development Program. “Decentralization: A Sampling of Definitions”. [Online]. New York, USA. October 1999 [Accessed: October 2019]. Available at:< http://web.undp.org/evaluation/documents/decentralization_working_report.pdf>.

H. Hoyt. Forces of Urban Centralization and Decentralization. American Journal of Sociology. Chicago Journals. 1941, Vol. 46, No. 6, P. 843-852.

and both are needed even at the same time and at the same metropolis. Decentralization can be implemented in different sectors of a metropolis to find the most effective ways for achieving the desired objectives. Also, the new cities or metropolitans of the 21st century are not just some fantastic cities of towers. But they are somewhat the familiar decentralized world of highways, green spaces, shopping malls, and like.¹³²

Another important element in the metropolitans of the twenty-first century is their healthy urban mobility and pedestrianization that plays an important role in the current metropolitans and generally urban environments. Until the mid-nineteenth century, cities were mostly walking areas but the advent of the automobile changed everything. It comes with the need to regulate, channel, separate, and restrict vehicular movements that arise in urban areas. Pedestrian zones in urban areas are the roads, integrated roads, streets, or areas that are reserved specifically for pedestrians and can be applied in different forms. The pedestrian mall is an example of pedestrianization in cities that is generally a commercial or mixed-use urban street that vehicles are prohibited from circulating. The concept started in Europe and was introduced as a measure to counter air, noise, and visual pollution especially in central areas to encourage walking and socializing.¹³³

A new prototypical of the leisure-pleasure-oriented pedestrian area was transforming the city center into a living room for city residents and visitors. It was first realized in Munich

132 R. Fishman. “Metropolis Unbound: The New City of the Twentieth Century”. Flux, 1990, No. 1, P. 43-55. [Online]. Available at: < <https://doi.org/10.3406/flux.1990.1172>>.

133 A. Parajuli, D. Pojani, “Barriers to the pedestrianization of city centers: perspectives from the Global North and the Global South”. Journal of Urban Design. England. Routledge Taylor & Francis Group. 2017. [Online]. Available at: < <https://www.tandfonline.com/loi/cjud20>>.

in 1972, related to the Olympic Games. The circulation of the new model was pushed by the reawakening of the importance of urban conservation and the creation of leisure-oriented lifestyles. Also, people-friendly environments can be reached through good design, creative management, convincing promotion, efficient maintenance, and understanding the desires of the urban dwellers. City squares, pedestrianization, and pedestrian priority, Home Zones, measures to lock up traffic, speed management, harmonization and balancing of walking and public transport, management of carriage and delivery, urban design and improved safety and security all have important roles to play in a local walking, cycling and using public transportations strategy and improving the metropolitan healthy mobility. In another word, humanizing our urban centers must be at the heart of any intervention if liveable communities are to develop and flourish.¹³⁴

In general terms, one of the important priorities for the metropolitans government is to make the city an approachable, safer, and more sustainable place for pedestrians, cyclists, and public transporters. On the other hand, bicycles continue to shine as an effective, useful, and trustworthy element in urban mobility. Many cities and metropolitans are expanding facilities to provide accommodations for bicycles as an everyday mode of transportation while improving urban livability. Bikes infrastructures make the streets safer for everyone, not just bicyclists. Therefore, to achieve safer mobility, it is essential to keep safe these vulnerable groups that travel around urban areas. When we park our cars, or

134 C. R. James. Creating a Better Walking Environments. Science Direct. Sustainable Transport, 2003, P. 282-297. [Online]. Available at < <https://doi.org/10.1016/B978-1-85573-614-6.50027-6>>.

R. Monheim. The role of pedestrian precincts in adapting city centers to new lifestyles. Science Direct. Sustainable Transport. 2003, P. 326-338. [Online]. Available at < <https://doi.org/10.1016/B978-1-85573-614-6.50030-6>>.

when we get off our motorbikes or bicycles, we become pedestrians. For that reason, caring about pedestrians means improving safety for everyone because, at one time or another, we are all pedestrians.¹³⁵

Another important element in the metropolitans of the twenty-first century is their urban green infrastructure that plays an important role in the current metropolitans and generally urban environments. Urban green spaces are also contributing to having sustainable improvements in cities and are among the features of inhabitants' quality of life. It is essential for a comfortable physical and psychological life of the inhabitants, planning the environments of metropolitans in a way that answers the needs of dwellers. Rapid migration to the metropolitans turned them out to the clusters of concrete structures with distorted and dense urbanization and affected negatively the quality of life of the residents. Therefore, the need for a systematic and planned urban green system to overcome environmental problems such as air, water, soil, and noise pollution and generally increasing the quality of the metropolitans environment is inevitable.¹³⁶

A park can play the role of a welcoming space in the city if it is designed and created consciously according to architects' and planners' desires for the public realm performance. Architects and planners should be aware of and debate some important philosophical features as the behavior of the residents, the impression left upon visitors, and the overall level of

135 Ajuntament de Barcelona. Road Safety, Safety and Prevention. [Online]. Barcelona, 2018. [Accessed: October 2019]. Available at <<https://ajuntament.barcelona.cat/seguetatiprevencio/en/roadsafety>>.

136 N. Demircan, I. Sezen. "Use of Green Spaces for Liveable and Sustainable Cities: Urban Allotment Gardens". Iğdır University. Journal of the Institute of Science and Technology. Cilt. 2018, Vol. 8(1), P. 263-270.

happiness and leisure to create and plan a high-quality system of greenery in metropolitans.

Also, the Greenspace system and other nature-based areas offer inventive methods to increase the quality of urban settings, improve local flexibility and promote sustainable lifestyles, as well as improving both the health and the well-being of urban residents. Parks, playgrounds, or vegetation in public places are central elements of these approaches and can help to ensure that inhabitants have adequate opportunities for experiencing nature, urban biodiversity is preserved and protected, environmental threats such as air, water, soil, noise, and visual pollutions are reduced, the effects of extreme weather events like heatwaves, extreme rainfall or flooding are moderated, the quality of urban living is improved, and the health and well-being of residents are developed.¹³⁷

In this thesis, urban green infrastructure is a key element in a modern metropolitan that will provide opportunities for active lifestyles. They are an important part of public open spaces and common services provided by a city and can serve as a health-promoting setting for all members of the urban community. It is, therefore, necessary to ensure that public green spaces are easily accessible for all classes of residents and distributed equitably within the city. They will have a notable effect on the culture in different ways which are not just limited to art, music, performing arts, festivals, and history. They can include cultural amenities and spaces that contribute to a community's sense of the place. In another way, urban green infrastructures are frequently a location for outdoor concerts and theatrical performances and attract a wide range of spectators from different classes due to their openings, free, and

137 WHO. World Health Organization. Regional Office for Europe. "Urban Green Spaces: A brief for action". [Online]. Copenhagen, 2017. [Accessed: March 2019]. Available at:< <http://www.euro.who.int/>>.

easy accessibility to the surroundings.

Generally, the urban green system can be recognized as an important investment that local authorities can make on behalf of the citizens and their well-being. Thus, improving greenery and adding vegetation in the public spaces would improve the green structures of a metropolitan and push it to achieve its purposed environments.¹³⁸

These three explained elements are among important features that a modern metropolis in the purpose of this thesis should follow rather than the other essential elements. Actually, according to the previous section about the urban pattern, and the star galaxy prototype I believe that this model would facilitate the current metropolitans to implement necessary features in their urban fabrics apart from their shape and model of their networks. It will promote the idea of decentralization as long as pedestrianization and healthy mobility while improving and implementing urban green networks into the metropolitans.

138 WHO. World Health Organization. Regional Office for Europe. "Urban Green Spaces: A brief for action". [Online]. Copenhagen, 2017. [Accessed: March 2019]. Available at:< <http://www.euro.who.int/>>.

3.2. Contemporary Urban Park in the Metropolis

However, the existence of an urban park is important in a metropolis but it is essential to have a successful one that is accepted by the urban residents. For many residents, urban parks and green spaces provide more than environmental benefits and it is an essential part of the quality of life in densely populated cities or metropolises.

However, not all the urban parks are situated at the common center of the city but they could be connected and integrated into the urban fabric and also serve elements and facilities which attract the dwellers. On the other hand, urban parks with more diverse activities have increased usage which in turn can increase the perception of safety in the park. As a result, it will fascinate food sellers and other kiosks that causes attracting the public to the parks, and generate income for park conservation. Festivals and other seasonal events also can increase the attraction aspect and number of activities in the park for the users as long as providing an interesting area for different classes and ages of the residents.¹³⁹

Generally, not all the contemporary urban parks are situated at the heart of the city, though it is an encouraging element. But they can retrieve the distance to the center by providing a safe, relaxing, dynamic, easily accessible readable area, and attract urban dwellers besides keeping them for a long time in the park.

139 H. Platt. "The Humane Metropolis: People and Nature in the 21st- Century City". The USA. Published by Rutherford H. Platt and the Lincoln Institute of Land Policy. 2006, 327P, ISBN 1-55849-553-3.



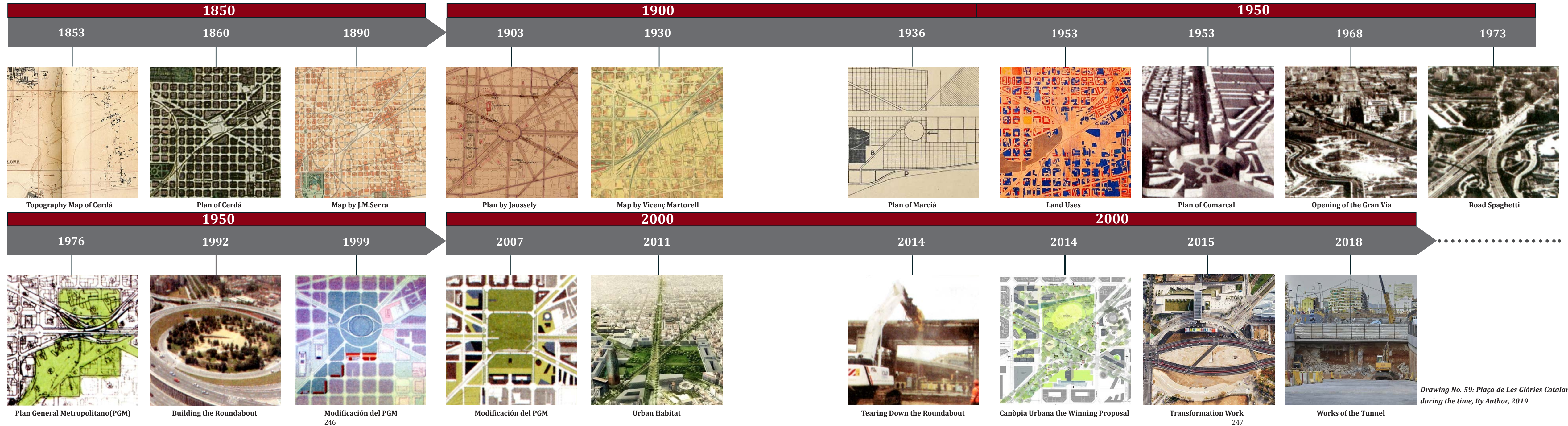
Photo No. 54: An Image of the Southern Part of Plaça de Les Glòries where the Children's Play Area was Concentrated and with a Look to Meridiana as a True Urban Freeway Crossing of Pedestrian Bridges, 1976, Photo by Institut Cartogràfic de Catalunya. Fons SACE

- ***URBAN RENEWAL FOR NEW GREEN CORE AND CITY CENTER IN BARCELONA***

The so-called “Square” of Plaça De Les Glòries Catalanes which most often shortened to Glòries is a large urban space devoid in the geometric center of Barcelona. Les Glòries had been configured as the city center in the plan designed by Ildefonso Cerdá Suñer for Barcelona. Cerdá determined the most remarkable characteristic of the area as the major intersection of the three largest roadways of the city in his design. The Diagonal, the Gran Via, and the Meridiana have become the main elements for structuring the Eixample Plan and channeling the vehicle traffic as they are entering from the axes, north, and east of the city. A large rectangle area which is equivalent in size to approximately four city blocks was initially laid out. An interesting point of the area is that both the regulation for space and also its form disconnected from the overall grid of Barcelona and also the unique spaces included in the Master Plan.¹⁴⁰

The design by Ildefons Cerdá did not remain without modification and it starts to develop from half a century later till present. About 1903, Leon Jaussely developed the idea of a meeting place for the city's main roadways and consolidated with the idea of Central Junction, to respond to the need for more connection with the main elements of the area like the new Central Station. In the design by Jaussely, Open space was laid out in a circular form shaped by the buildings that were placed between more streets coming and created

¹⁴⁰ J. Bunyesc, F. Cifuentes. “Other Glories: Proposal for the re-naturalization of Barcelona”. Edited by C, Talvy, J. Ludwig, G. Thomson. 1st Edition. Barcelona. 2016, 183P, ISBN 978-84-944873-0-9.



a 10 point star based on the tenets of the Beaux-Arts style. In this design, the axes of the avenues followed the regulations of symmetry and a focal point.¹⁴¹

Some years later in the 1930s the conceptual framework which was provided by the GATCPAC plan distanced itself from earlier proposals and tried to maintain the central axes which had been defined by Cerdá. It included a large scale circular space park which was located offset toward the sea and separate from the intersection of three large roadways. This project was trying to highlight in a skilled way the two central themes: the park and the road junction. But it was not the end for Glòries and the Regional Plan of 1953 had little influence on the proposals for the area. According to the shape and size recommended by Jaussely’s proposal, the partial plan for the eastern zone was again focused on designing a public square. Metropolitan Master Plan changed the planning parameters not more than half a century later, therefore, a turning point occurred in the sequence of proposals and the possible developments model. In 1976 the Metropolitan Master Plan extended the open space which encompasses a surface area that was the equivalent of around 3*4 Eixample city blocks in size and situated a large asymmetrical road junction in the center. In Mayor Porcioles Barcelona 2000 Plan, the images of roads overlapping like highway interchange were discerned as the symbol of modernity. Therefore, the traditional concept of the central urban square was left behind after over a century, and the organized uses and city-wide activities came together create a compact open space.¹⁴²

141 V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect’s office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.

142 F. Magrinyà, F. Marzá. Cerdá 150 Years of Modernity. Barcelona. Fundación Agbar. 2009, 318P, ISBN 978-1-945150-35-7.

In the 1990s, the infrastructures created for the Olympic Games created important changes in the urban reality of the eastern sector of Barcelona. The basic road framework for the Glòries area was defined in 1992 when the construction of the raised loop in Glòries started and covered the southern section of Avinguda Meridiana. Building the Ronda Litoral, shifting the position of the railway line which ended to the coastline development, the approval plan of extending Diagonal and its openings, development of seafront and the modification of Master Plan for Poble Nou Eixample, that were all happened in just 10 to 12 years later, changed the expectations for the area around Glòries and created a clear definition of the surrounding conditions.¹⁴³

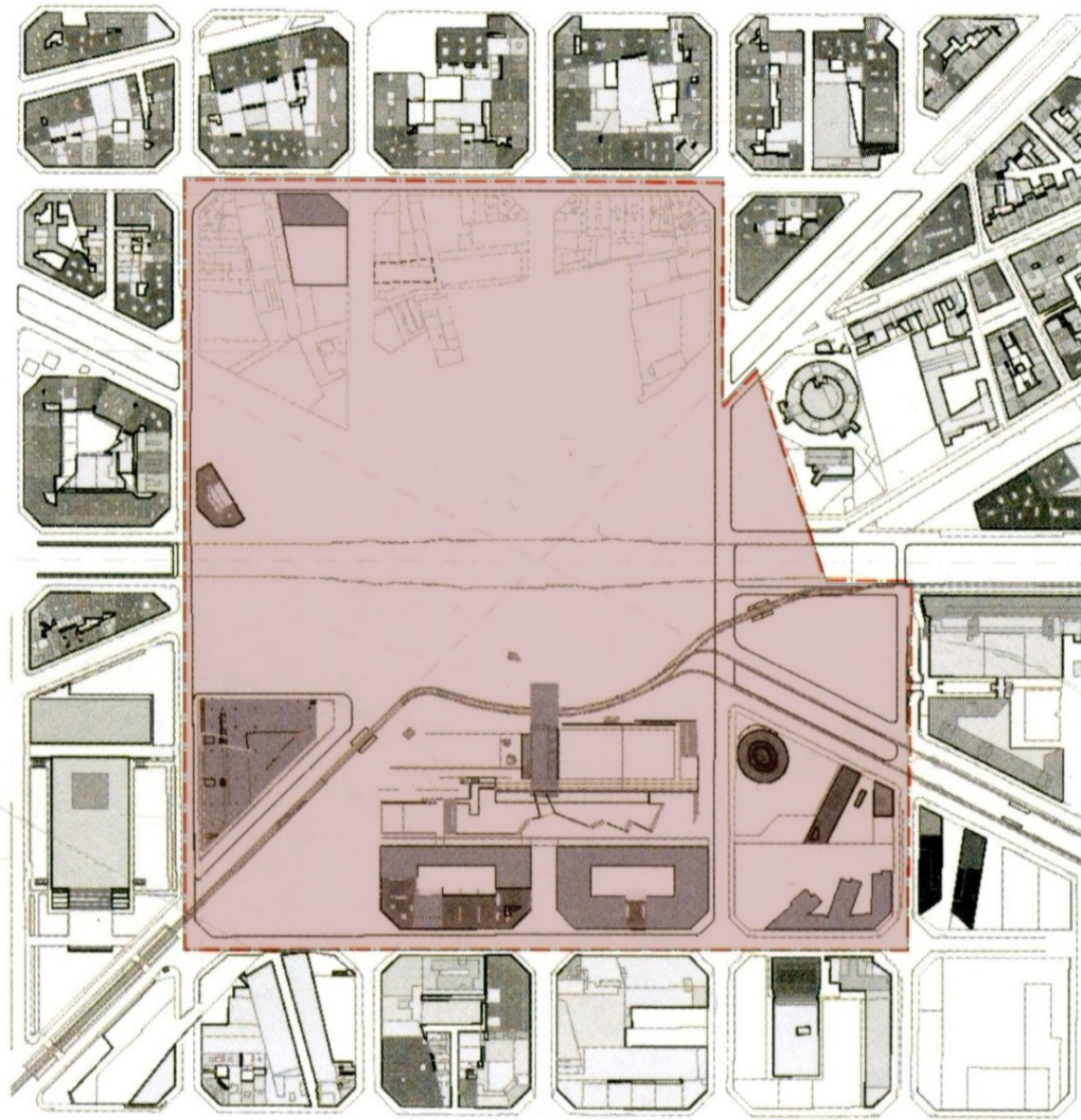
In the late 1990s, Glòries began to approach the function envisioned by Cerdá and was no longer seen as the edge of the city. The approval plan for Glòries-Meridiana Sud in 1999 brought an important point for the area in which essential designs were carried out around the future open space. The iconic tower, Design Museum, administrative building, cinema complex, and Plaça de Les Arts and Mercat dels Encants, demonstrates which elements were best suited to the future of the area, both with the respect to the park concept and the solution of vehicle traffic.¹⁴⁴

The most notable aspects of the document which were created and compromised in 2007

143 F. Magrinyà, F. Marzá. Cerdá 150 Years of Modernity. Barcelona. Fundación Agbar. 2009, 318P, ISBN 978-1-945150-35-7.

V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect’s office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.

144 F. Magrinyà, F. Marzá. Cerdá 150 Years of Modernity. Barcelona. Fundación Agbar. 2009, 318P, ISBN 978-1-945150-35-7.



Drawing No. 60: Competition Area Plaça de Les Glòries Catalanes, 2011

were the plan of tunnels to channel the vehicle traffic entering the city and the demolition of the existing circular overpass, which freed brought identity to the area and the elegant traffic solution of dig tunnels to channel traffic passing through the area changed the possibility of the model and planning for the park. In 2011 important actions of preparing the surface of the area from the influence of intense traffic and also the idea of organizing a rectangular open space around the perimeter in the Eixample had been done. Also, these concepts park and layout of the tunnels happened and finally, the City Council announced the International Design Competition in 2013, and in 2014 the winner of the design competition named “Canòpia Urbana” was announced.¹⁴⁵

Besides, Barcelona is one of the cities with the highest number of vehicles and the highest pollution rates in Europe. Barcelona's Eixample has 95% of its surface covered by buildings, pavements, and asphalt pavements and only 5% of the entire surface of the Eixample is of land and transpires. The big imbalance makes City Hall think that, perhaps, the great void that will be opened in the Eixample by the demolition of the ring of the Plaza de las Glòries should be left for a while without urbanizing and waterproofing. Barcelona does not need more buildings, more cars, or more pavements but on the contrary, it needs more public

¹⁴⁵ F. Magrinyà, F. Marzá. Cerdà 150 Years of Modernity. Barcelona. Fundación Agbar. 2009, 318P, ISBN 978-1-945150-35-7.

V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect's office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.

Ajuntament de Barcelona. Les Glòries, Web del proceso de transformación de les Glòries. Movilidad, estructura urbana, verde urbano, usos y actividades. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/glories/es/>>.



Drawing No. 61: Plan of Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014

transport, more bicycles, more trees, and more green areas.¹⁴⁶

In April 2013, the Barcelona City Hall issued the call for participation in the restricted call for the urban design of the open area which encompassed about 12 hectares in the Plaça de Les Glòries Catalanes. The competition had two rounds and was held based on the provisions of the modification of the General Metropolitan Plan of the area and also the Glòries commitment that had been signed in 2007. It seeks to guarantee the new centrality of the square, organize mobility by promoting sustainable transport, maximize the green space, and re-order the planned equipment. Ten teams from fifty-five submitted ones went to the second round of the competition and finally in February 2014, Canòpia Urbana designed by French Studio Agence Ter and the architect Ana Coello de Llobet was selected and announced as the winner proposal to define the configuration of the urban space in the Plaça de Les Glories Catalanes.¹⁴⁷

Moreover, the physical and geographical centrality of the Plaça de Les Glòries had not been translated until now into the urban centrality that Cerdà had foreseen for this area of Barcelona. Today Glòries is in the articulation between the urban system of the Cerdà expansion and the future green axis. It will work as a fundamental piece and link the parks of Trinidad, Camí Comtal, and Ciutadella. Canòpia Urbana surpasses intelligently the contrast between park and square and generates a central glorious space with metropolitan feels and also with

¹⁴⁶ Ajuntament de Barcelona. Info Barcelona. [Online]. Barcelona. [Accessed: February 2019]. Available at< <https://www.barcelona.cat/es>>.

¹⁴⁷ Ajuntament de Barcelona. Les Glòries, Web del proceso de transformación de les Glòries. Movilidad, estructura urbana, verde urbano, usos y actividades. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/glories/es/>>.



Drawing No. 62: Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014

its own personality which is unique in the city. In this project, the metropolitan scale and local scale are represented greatly by the existing and newly designed uses and services around the area such as the Design Museum and Encants market. Canòpia Urbana provides a space for daily use of inhabitant besides an opportunity to install nature into the city. It focuses on re-naturalizing the city by using the large and medium scale green coverings already exist and articulate them through a system of green connectors and functional nodes, by using vegetation more systematic than ornamental. On the other hand, this project is going to keep Diagonal as a symbolic artery and transforming it into a fresh, agreeable road only used by pedestrians and bicycles. It will replace private vehicular traffic with more sustainable public mobility which will concentrate on the southern part of the square to reinforce the modal hub on the surface. It also offers an opportunity for interconnectivity between the different public transportation and offers Barcelona an extensive comfortable space. This project will provide a large green lung that extends through the streets of its perimeter and infiltrates the whole city.¹⁴⁸

148 Plataforma Arquitectura. El sitio web de arquitectura más leído en español. Primer Lugar Concurso Plaza de les Glòries. [Online]. Barcelona, 2014. [Accessed: February 2019]. Available at: < <https://www.plataformaarquitectura.cl/cl/02-341167/primer-lugar-concurso-plaza-de-les-glories-barcelona-espana>>.

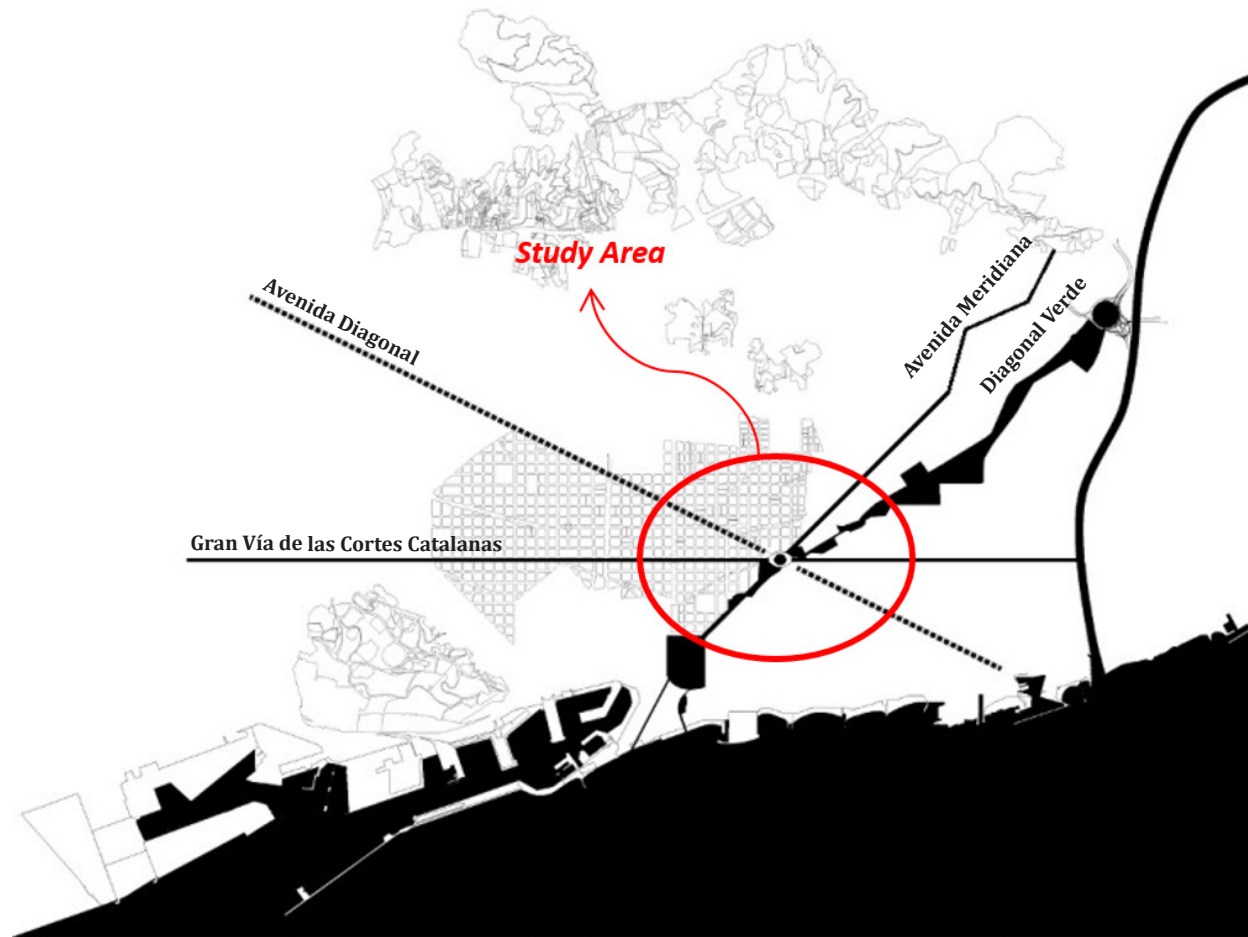
Ajuntament de Barcelona. Les Glòries, Web del proceso de transformación de les Glòries. Movilidad, estructura urbana, verde urbano, usos y actividades. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/glories/es/>>.



Drawing No. 63: A look to Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014



Drawing No. 64: Mirador de Les Glòries, Canòpia Urbana, 2014



Drawing No. 65: Focal Position of Plaça de Les Glòries in the Intersection of Three Important Roadways, By Author, 2019

3.3. CONCEPT OF GLÒRIES URBAN PARK AS A NEW PROTOTYPE

As far as mentioned in the previous section due to the highest number of vehicles and air pollution in Barcelona among the European cities, and also because of the lack of green areas and transpires lands, the City Hall thought about Glòries as a great void in the city and then Canòpia Urbana arose. Therefore, when the winning design of the competition for the Plaça de Les Glòries Catalanes was announced in 2014, the concept of the center of Barcelona that had been envisioned 150 years ago by Cerdà came true.

The current drawing greatly shows the focal and important position of the area in the city which provides a high potential dynamic space. The drawing shows that Glòries situated in the intersection of Avenida Meridiana, Avenida Diagonal and Gran Vía de Les Corts Catalanes which are the main thoroughfares of Barcelona.

In fact, studying the history of Plaça de Les Glòries Catalanes and reviewing its developments and modifications from more than a century clarifies the capability of the area for making a great revolution in the whole Barcelona metropolis. This revolution generates the qualities and characteristics which are needed to bring Barcelona closer to a modern metropolis by improving three important issues of decentralization, healthy mobility, and green areas.

According to what Cerdà wished for Glòries as the city center it is clear that improving the area will also prove the concept of decentralization in Barcelona and will push the city more into a modern metropolis with several city centers. Therefore, Barcelona will not be defined by just one city center and Glòries by providing the desired facilities and requirements of the



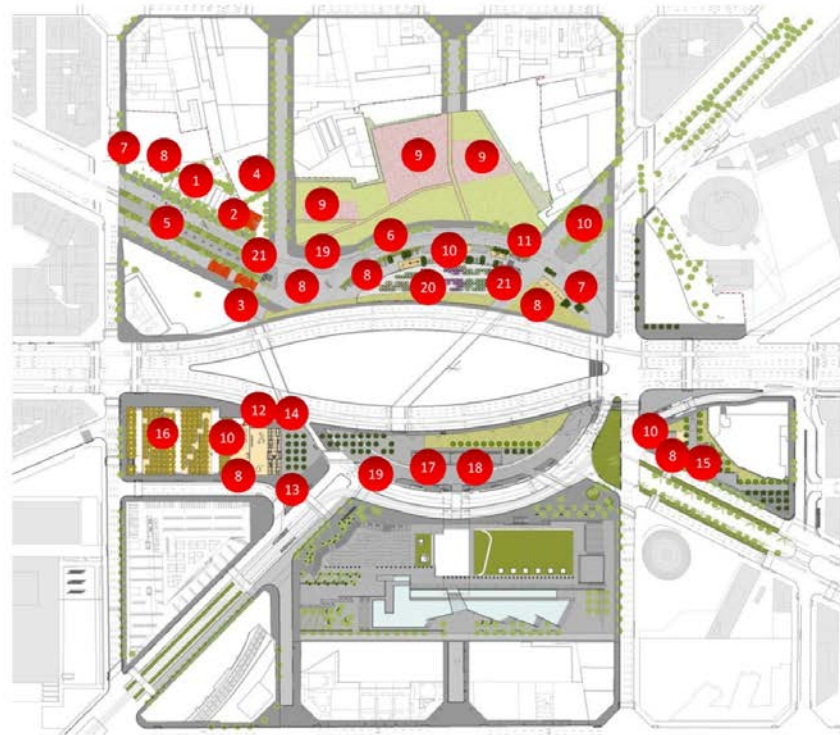
Drawing No. 66: Important Facilities Situated in the Plaça de Les Glòries Catalanes, By Author, 2019

residents and inhabitants who are living around can serve a new center. It will reduce the number of daily movements through the whole city for every single need while it is in balance and cooperation with the rest of the metropolitan. the result of this action is time-consuming and less pollution due to the less use of cars for moving between the work and living place. Glòries by providing urban facilities such as shopping malls, green areas, offices, restaurants, and like can also improve the work opportunities for the inhabitants who are living in the same zone and reduce the needs of going so far for daily needs.

The Drawing No. 66 shows the important facilities situated in the Plaça de Les Glòries Catalanes that turned the area into a new dynamic urban center. These main facilities are also playing as a navigation tool for the whole area as well as providing the opportunities of keeping the residents in the area and reduce the desire of traveling to the other zones every day. Navigation services are important because it helps the area to be more readable and clear for the users and avoid getting lost, confused, and find the way easily.

On the other hand, Canòpia Urbana which is a notable facility of Glòries also help improving the capability of the area not just by providing urban greenery but also by providing different facilities that helps to promote the sense of independence of the residents and also the area to the rest of the city while it is cooperating with and shaped an integrated metropolitan.

According to the concept of decentralization one thing that is so essential is to avoid concentration of facilities in one area, therefore, it is important to spread the facilities



- 1.- Petanca existent
- 2.- Pista de bàsquet
- 3.- Pistes de voleibol
- 4.- Espai per patinatge
- 5.- Taules de ping-pong i futtoc
- 6.- Circuit d'atletisme connectat als circuits esportius dels barris de l'entorn
- 7.- Zones d'estiraments i gimnàstica suau
- 8.- Àrea de jocs infantil
- 9.- Espai polivalent per a activitats culturals (música, teatre, titelles, espectacles populars, circ, cinema a la fresca)
- 10.- Espais d'estada amb mobiliari urbà
- 11.- Fira de la Festa Major del Clot
- 12.- Punt d'informació turística
- 13.- Lloguer de bicicletes
- 14.- Exposició Glòries
- 15.- Torre Mirador - Observatori de les obres de transformació
- 16.- Viver d'alzines recuperades
- 17.- Intercanviador de transports públics
- 18.- Pèrgola. Espai polivalent per a activitats culturals
- 19.- Recorregut bicicleta
- 20.- Viver d'espècies arbres Canòpia
- 21.- Guingueta bar/ludoteca

Drawing No. 67: Facilities Provided by Canòpia Urbana, Ajuntament de Barcelona, 2019

programmatically all over the metropolitan. On the other hand, due to the urban patterns that had been introduced earlier in this thesis (star-shape), if Glòries assumed as the core of the star then the main thoroughfares of Barcelona will shape the arms or radiuses along with the core of the star. In this case, Avenida Meridiana, Gran Via de Les Corts Catalanes, and Avenida Diagonal are playing key roles in spreading the facilities through the whole metropolitan while connecting different nodes of the city.



Drawing No. 68: Facilities Provided by Canòpia Urbana for Different Activities and Users, Ajuntament de Barcelona





Drawing No. 69: Avenida Meridiana and its Connection to the Glòries, By Author, 2019

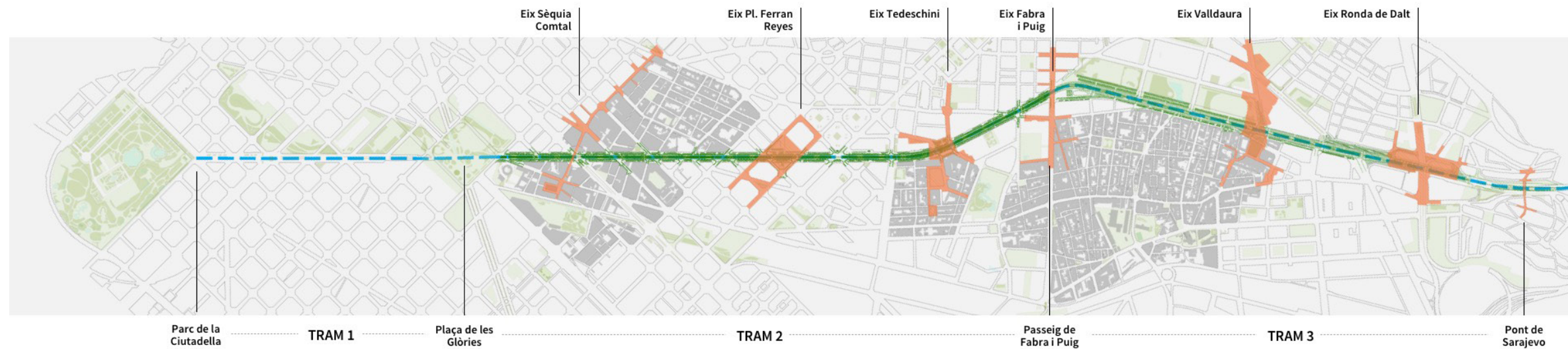
- ***AVENIDA MERIDIANA***

Avenida Meridiana with its 7.1 Kilometers in length had been designed by Ildfons Cerdà in 1859 as one of the three important accesses in the hierarchy after Diagonal and Gran Via. It links the Parc de la Ciutadella with the northern part of the city and crossing the Plaça de Les Glòries Catalanes in its way. In the design of Meridiana Cerdà just diverted the layout of the pass differently and making it describe a zigzag to avoid the destruction of part of the Sant Andreu. However, during the process of urbanization of the avenue, lots of farmhouses and hostels were demolished, such as Nova Torre del Baró which was a farmhouse built in 1797 and disappeared in 1967.

Furthermore, the Avenida Meridiana is serving vast diversity in different neighborhood urban fabrics along the whole way from Parc de la Trinitat to Parc de la Ciutadella and this feature creates such richness for it. Essentially for many decades Meridiana was an insoluble barrier between neighborhoods and was unable to respond to the needs of their neighbors. Thus, in history, Meridiana is a model of mobility based on the private vehicle and, at the same time, forgetting, isolating, and disregarding the right of the inhabitants in the city and dehumanized urbanization. But now everything changed and Meridiana as long as being an important thoroughfare due to its potential for providing different speeds of mobility and a variety of spaces that are greatly suited for humanization.¹⁴⁹

As far as mentioned before to have a modern metropolis it is necessary to give priorities to

¹⁴⁹ V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect's office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.



Drawing No. 70: Areas of Activity, Meridiana, Ajuntament de Barcelona, 2019

healthy mobility and green areas. In this case, the process of redeveloping Meridiana from an urban motorway to a thoroughfare in which its priorities are public transport, pedestrian, green, and leisure areas was started in 2018 and predicted to finish in 2019. Meridiana by connecting three important green areas as well as improving greenery along its way can be assumed as a green nodes connector. It also promotes healthy mobility by providing bicycle lanes, public transportation, and well-paved pathways for pedestrians.

Studying and working on the strategies and criteria that guide future intervention was necessary to make Meridiana with everyone and for everyone. At the end of the transformation, we will have a new Meridiana which will offer more spaces for pedestrians with more trees and relaxation areas while bicycles and public transportation are prioritized. But this aim will not achieve unless rethinking of Meridiana transversally as long as longitudinally. Therefore, the cutting civic axes connect the neighborhood around Meridiana to the territory. These axes will segment the linear route of Meridiana and give it meaning in all the areas. Thus, transversal axes that concentrate the highest density of pedestrians and cyclists, with a great connection potential between the neighborhoods on both sides of the Meridiana were identified and crosses were designed as a response to the daily needs of the inhabitants. The following figure will show the future of Meridiana clearly.¹⁵⁰

¹⁵⁰ Ajuntament de Barcelona. Meridiana. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/meridiana/es> >.

Ajuntament de Barcelona. Info Barcelona, Urban Planning and Infrastructure. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <https://www.barcelona.cat/infobarcelona/en/tema/urban-planning-and-infrastructures> >.



Photo No. 55: A look to Meridiana Near La Sagrera and Fabra i Puig, 1950-1975



Photo No. 56: Current and Future look to Meridiana Near La Sagrera and Navas, 2019



Drawing No. 71: Gran Via de Les Corts Catalanes and its Connection to the Glòries, By Author, 2019

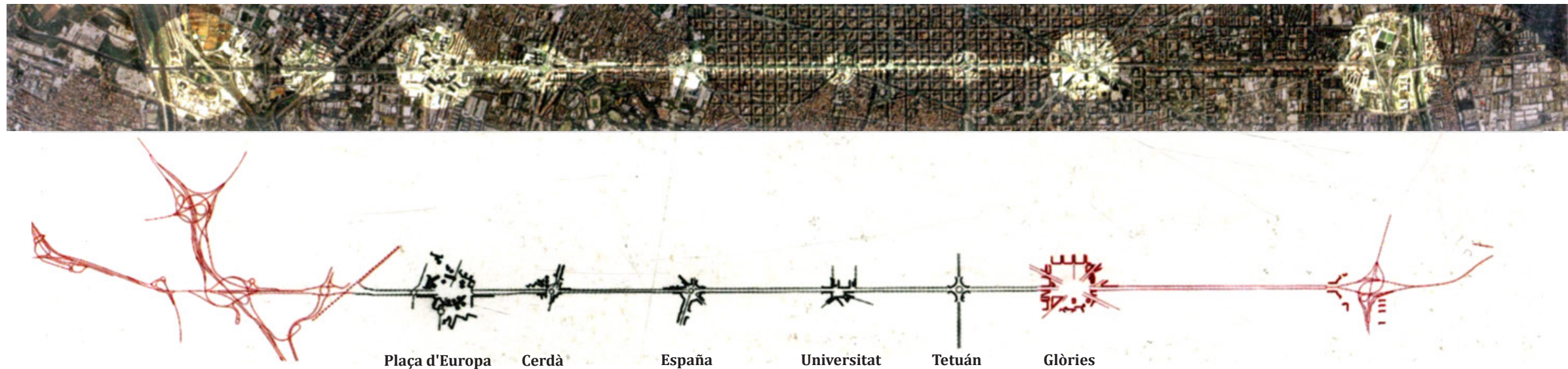
- **GRAN VIA DE LES CORTS CATALANES**

Gran Via de Les Corts Catalanes is another important avenue of 13.1 Kilometers which cross the city of Barcelona longitudinally and simply calls as Gran Via. Gran Via is the longest street in Catalonia and also the first one in Spain for its street numbers but the second one for its length. It has been designed in Pla Cerdà as a wide road that links several villages around the coast of Barcelona. Additionally, It starts off the border with Hospitalet de Llobregat, near the Ildefonso Cerdà square, and ends at the other end of Barcelona, on the border with San Adrián del Besós.

If we imagine Barcelona as a system of nodal linkages, it is apparent that the city expanded through a series of multi-nodal clusters that are not sequential just because of their topography, use, transportation and typology but through a series of economic growth models and open space model. Gran Via nodes are connected by a highly supplicated urban infrastructure and show clearly a multi-nodal linkage concept.¹⁵¹

Therefore, Gran Via as a multi-nodal connector is playing an essential role in improving Barcelona to a contemporary metropolitan. It keeps the connection of different economic centers together as far as promoting healthy mobility along its way. On the other hand, due to the Canòpia Urbana project which aims to create a space around the Glòries more pedestrian and bicycle-friendly and also Glòries Commitment of 2007, moving traffic underground was essential. Gran Via by connecting the main squares of the city can help to promote the

¹⁵¹ J. Busquetes, P. Ramos. Barcelona Manifold Grids and the Cerdà Plan. Sponsor: BAU-B Arquitectura i Urbanisme SLP. Applied research and design publishing. Harvard Graduate School of Design. 2017, ISBN 978-1-939621-53-5.



Drawing No. 72: Nodes in the Sequence of Metropolitan Squares, Gran Via, By Author, 2019

idea of decentralization while they are integrated and working together for one metropolis. On the other side, it promotes the idea of pedestrianization by giving the priority to foot-travelers, bicycles, and public transportation and moving the traffic under its surface into the tunnels.

Once the elevated traffic circle was torn down in 2014, movement in the Glòries was guaranteed by the surface roads like a superblock. In this case, Gran Via moved traffic about 10 meters under its surface, between Carrer Castillejos and Rambla del Poblenou, and absorbing a huge amount of traffic load daily.¹⁵²

Also, deconstructing the traffic circle (Roundabout) and moving the vehicles underground and on the surface is a way of giving priority to the pedestrians and improving healthy mobility that will clear the area from any destructing visual and audial appearance and will create a safe area for the pedestrians and cyclers.

¹⁵² V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect's office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.



Photo No. 57: Top View of Plaça de Les Glòries before Deconstruction of Roundabout, 2014

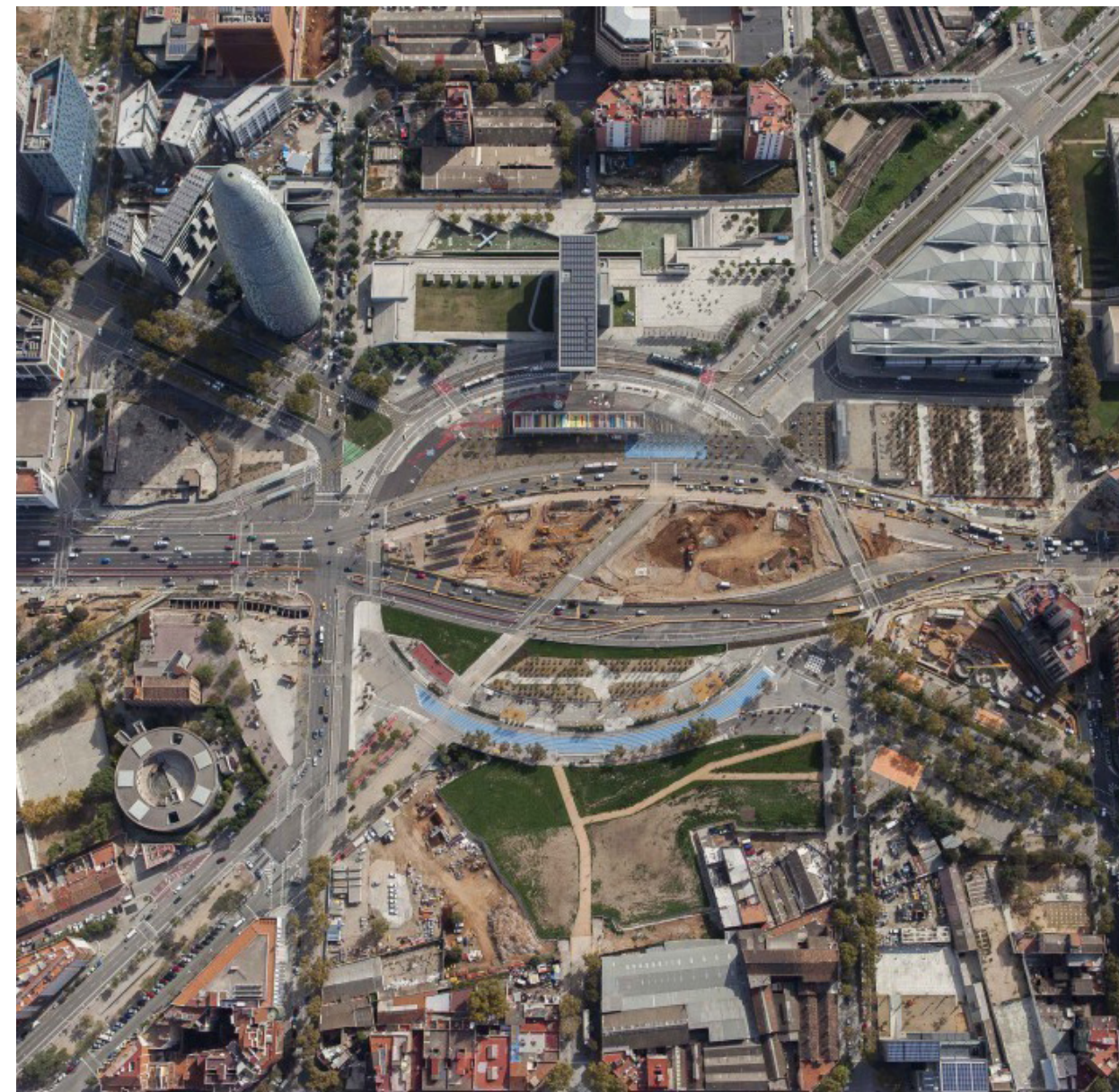


Photo No. 58: Top View of Plaça de Les Glòries after Deconstruction of Roundabout, 2015



Photo No. 59: Deconstruction of Roundabout in Plaça de Les Glòries started in February and ended in September 2014



Drawing No. 73: Top: Tunnel Castillejos, Gran Via - Down: Tunnel Rambla, Gran Via, Ajuntament de Barcelona, 2019



Drawing No. 74: Avenida Diagonal and its Connection to the Glòries, By Author, 2019

- ***AVENIDA DIAGONAL***

Finally, the most important and broadest avenue of the city of Barcelona which is at the intersection of the two others in Glòries is Avinguda Diagonal. It cuts the city into two parts concerning to the grid pattern of the surrounding streets. As far as explained before, the Canòpia Urbana project is going to keep Avinguda Diagonal as a symbolic artery and create a fresh space with bicycle and pedestrian-friendly characteristics that are inseparable requirements of a modern metropolis like Barcelona.

In this case, the City Hall organized meetings to vote on for the urban remodeling of the avenue between Glòries and Verdaguer that almost would double pedestrian space by creating an extra 13,000 square meters, as well as boosting the bike lane network and green spaces. It will also transform the most run-down and underused section of the avenue into a healthier, greener, and safer place. It will also connect the two tram systems and includes the tram section in the Canòpia Urbana within the large future Parc de Les Glòries, to the southern side of the area, where one of the important public transport interchanges of the city will be located. This project will improve the connectivity between different types of transportation and reorganizing the paths will provide sustainable mobility for the future park in Glòries.¹⁵³

On the other hand, health is a right and the authority has to promote the use of public transport and reduce traffic through measures for improving air quality and promoting a healthy city for residents. Thus, the system which is planned for Diagonal will promote healthy

¹⁵³ Ajuntament de Barcelona. Connected Tramway, Analysis and definition of Barcelona's tramway connection. [On-Line]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/mobilitat/tramviaconnectat/es>>.



Drawing No. 75: Tramway Connection Through Avenida Diagonal between Glòries and Verdaguer, Ajuntament de Barcelona, 2019

mobility for almost the whole metropolis of Barcelona due to the critical and unique position of this street in the urban grid of Barcelona.

Generally, based on the studies on the characteristics that each of the studied thoroughfares are following, the role of them in promoting a modern metropolis can be defined as:

- Avenida Meridiana: Improving Urban Greenery by connecting main and biggest green spaces of the city while implementing green areas along its way
- Gran Via de Les Corts Catalanes: Implementing the concept of decentralization by connecting economical and main nodes of the City
- Avenida Diagonal: Improving healthy mobility and the concept of pedestrianization by providing wider pedestrian pathways, improving the bicycle lanes, and also providing more services for public transportation.

But it is not enough and Barcelona still required more green spaces to be able to provide a healthy environment for its residents and achieve the characteristics of a modern metropolis. Therefore, a deeper study on the area helps the thesis to find out another important street in the area that however it does not seem important but it serves the city with great features of healthy mobility and urban greenery and called Diagonal Verde or Green Diagonal.



Drawing No. 76: Diagonal Verde and its Connection to the Glòries, By Author, 2019

- ***DIAGONAL VERDE, GREEN DIAGONAL OR PARC DEL CAMÍ COMTAL***

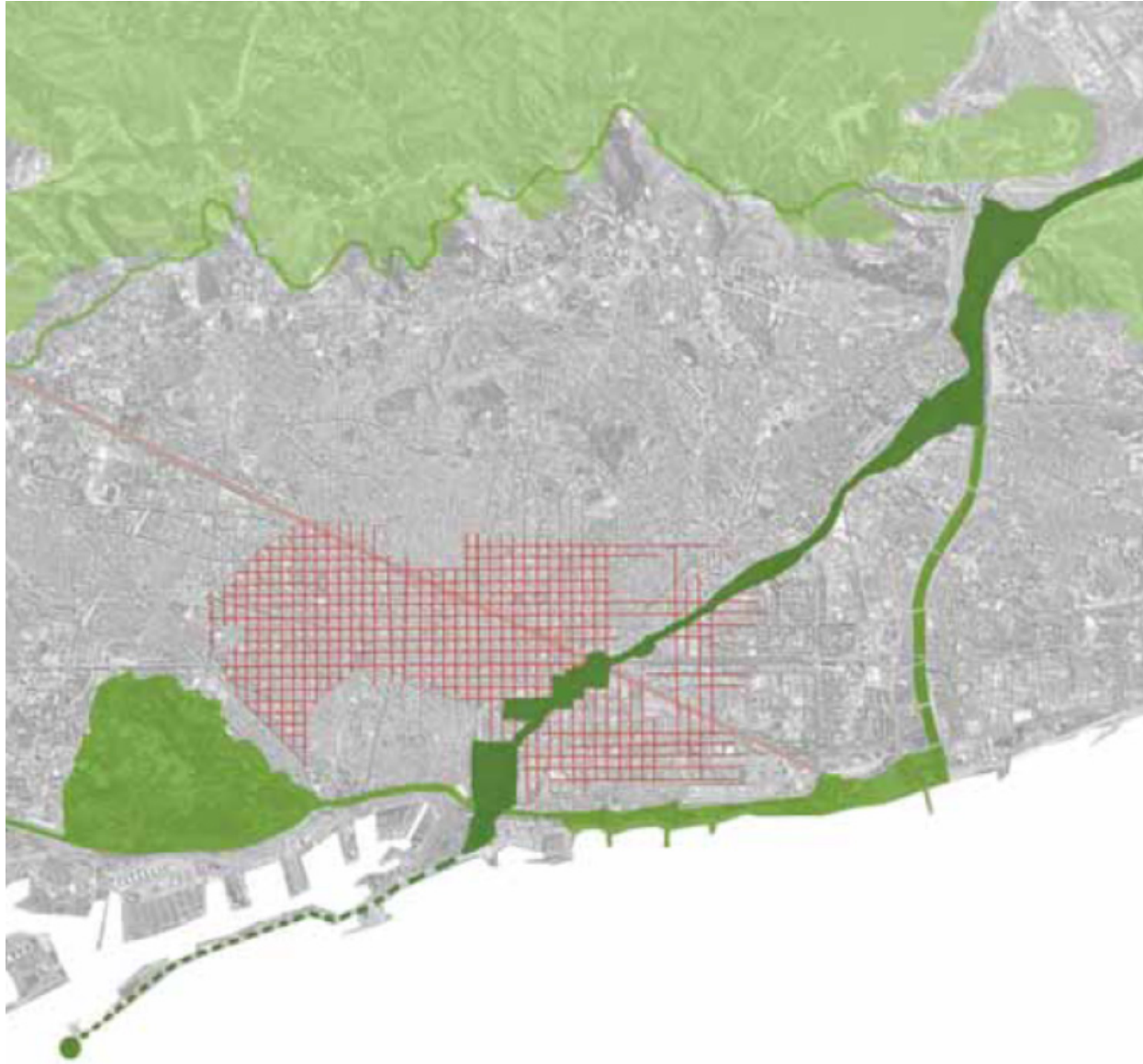
Besides the explained aims and concepts for Gran Via, Diagonal, and Meridiana, another zig-zag diagonal can be seen on either side of the Diagonal axis on the map which is called Diagonal Verde or Green Diagonal. It is 4km* 25-100m which is following very different geomorphological characteristics and is similar to Central Park in Manhattan in length. Furthermore, Green Diagonal opens its way to the Parc del Camí Comtal from the heart of Barcelona as a natural path for pedestrians and bicycles and offers a more habitable, greener metropolis era that is in direct contact with the nature that improves biodiversity and the ecological role of the city.¹⁵⁴

Moreover, Green Diagonal will join Sea and Mountain, Nature and City and provides the experience of bringing the coastal mountain range to the sea through the city. It offers a unique opportunity of crossing without difficulties from the wildest nature to the heart of the city. This greenway that comes from the sharpest landscapes of the region, enters the city through the natural valley of the Besòs and continues over a generous path in the shade where Pedestrians, bicycles, or skaters can easily discovering the different environments on their way through the Clot Park and the Ciutadella Park to the sea.¹⁵⁵

¹⁵⁴ Aldayjover Arquitectura y Paisaje. Nueva Diagonal Verde Barcelona. [Online]. Barcelona, 2011. [Accessed: March 2019]. Available at: < <http://www.aldayjover.com/index.php>>.

Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del "Parc Del Camí Comtal". 1st Edition. [Online]. Barcelona, 2011. [Accessed: September 2019]. Available at: < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1362.pdf>>.

¹⁵⁵ Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del "Parc del Camí Comtal". [Online]. Barcelona, June 2012. [Accessed: September 2019]. Available at < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1266.pdf>>.



Drawing No. 77: New Green Diagonal Concerning Existing and Future Green Corridors, Ajuntament de Barcelona, 2012

The Parc del Camí Comtal or Green Diagonal encourages the city of Cerdà and introducing a new transversal green slow rhythm. Thus, a modern green corridor landscape is injected into the metropolis that will improve the benefits of the rural area to the heart of the city. Also, it is a road with landmarks in which the landscapes, architectures, history, and the installation of water sources enrich its route and preserve the memory of the natural resource of the water in the city.¹⁵⁶

The visitor can reach the Parc del Camí Comtal in different ways from the train to pedaling from the mountain or walking from the city itself. It will provide the chance to experience the benefits of a green welcome carpet at the city where the new Meridiana reflects the identity of its historic neighborhoods in a firm way which is an optimistic green union between landscape and city. On the other hand, the separation that Barcelona has suffered from the natural world due to the historical shortage of large green spaces in the city will be compensated with the construction of what will become the largest linear park in Barcelona. A park of ours that will be added now to the list of large parks built in other centuries in the rest of European cities.¹⁵⁷

¹⁵⁶ Aldayjover Arquitectura y Paisaje. Nueva Diagonal Verde Barcelona. [Online]. Barcelona, 2011. [Accessed: March 2019]. Available at: < <http://www.aldayjover.com/index.php>>.

Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del “Parc del Camí Comtal”. [Online]. Barcelona, June 2012. [Accessed: September 2019]. Available at < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1266.pdf>>.

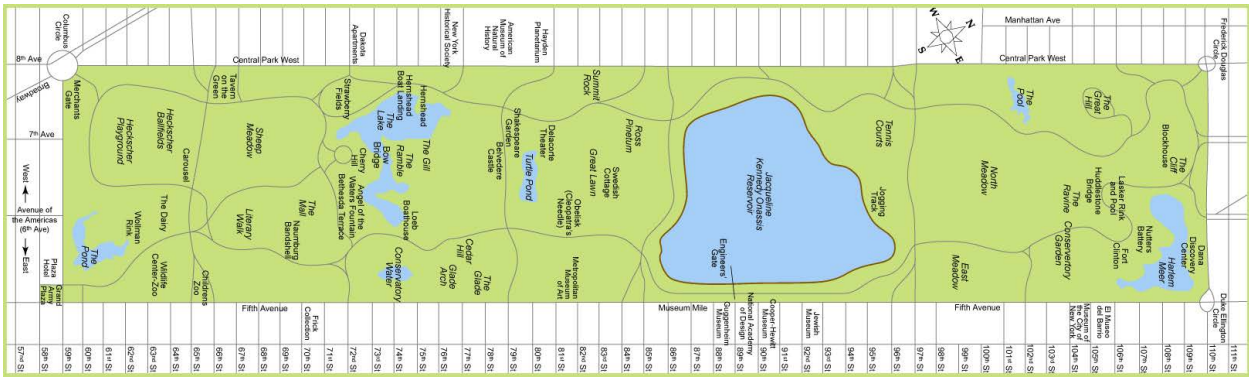
¹⁵⁷ Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del “Parc del Camí Comtal”. [Online]. Barcelona, June 2012. [Accessed: September 2019]. Available at < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1266.pdf>>.

For years, constant speed and acceleration have been the characteristics of the way we communicate, eat, travel, and occupy space. Life has been accelerating throughout history, coinciding especially with the revolutions of the media, both physical and virtual. Liveliness, proximity, and globalization tend to standardize and massify economies and communities. The constant increase in the passion of our daily lives leads to a loss of global significance. The nasty circle of always going farther and faster becomes an attraction in which the dehumanization of urban life goes against sustainability. Faced with this situation, we consider the possibility of returning to our natural rhythms, changing our vision of time, and enjoying activities related to leisure. The Slow movement seeks the quality of life, through the balance of our obligations and the tranquility of enjoying a walk or a healthy meal or being in the family.¹⁵⁸

The Parc del Camí Comtal is a unique opportunity to order spaces with friendly characteristics between neighborhoods, with new scenarios for physical, emotional, mental, and spiritual development. It is a space of Slow metabolism, which boosts meeting points, neighborhood needs, diversity, events, observation, and sustainability. The Parc del Camí Comtal or Green Diagonal consider slowness as a positive socio-cultural value. Its design is based on the welfare of people and the environment, offering a new form of sustainable, safe, and human urban mobility.¹⁵⁹

158 Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del “Parc del Camí Comtal”. [Online]. Barcelona, June 2012. [Accessed: September 2019]. Available at < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1266.pdf>>.

159 Aldayjover Arquitectura y Paisaje. Nueva Diagonal Verde Barcelona. [Online]. Barcelona, 2011. [Accessed: March 2019]. Available at: < <http://www.aldayjover.com/index.php>>.



Drawing No. 78: Dimensional Comparison of Central Park by Olmsted and Vaux, Manhattan (4000*800m) with Parc del Camí Comtal by Aldayjover Arquitectos SLP, Barcelona (4000*25-100m)



Drawing No. 79: A look to the Future Parc del Camí Comtal or Green Diagonal, Ajuntament de Barcelona, 2012



The main thoroughfares of Barcelona apart from all the features that are following are also playing the role of providing a great structure for the area and even the whole metropolitan due to their connection to the stable elements. In other words, the stable elements that in this case are mountain, sea, and river are playing like a natural limit for the metropolitan and the accesses and created an unlimited and at the same time limited space. For example, Avenida Meridiana is limited by the Ciutadella Park which itself is limited by the Mediterranean Sea in the southern part and meets the Collserola mountain in the northern part. Avenida Diagonal is also limited by the Llobregat river in the northwest and meets the Mediterranean Sea in the southeast of the city. And Gran Via de Les Corts Catalanes limited by the Llobregat River in the east part of the metropolitan and meets the Besós River in the west part of the Barcelona Urban area. These natural unchangeable or in other words stable elements pinned the whole area into the metropolitan and gives an identity to the main streets of the city that are connecting the Glories to its surroundings.

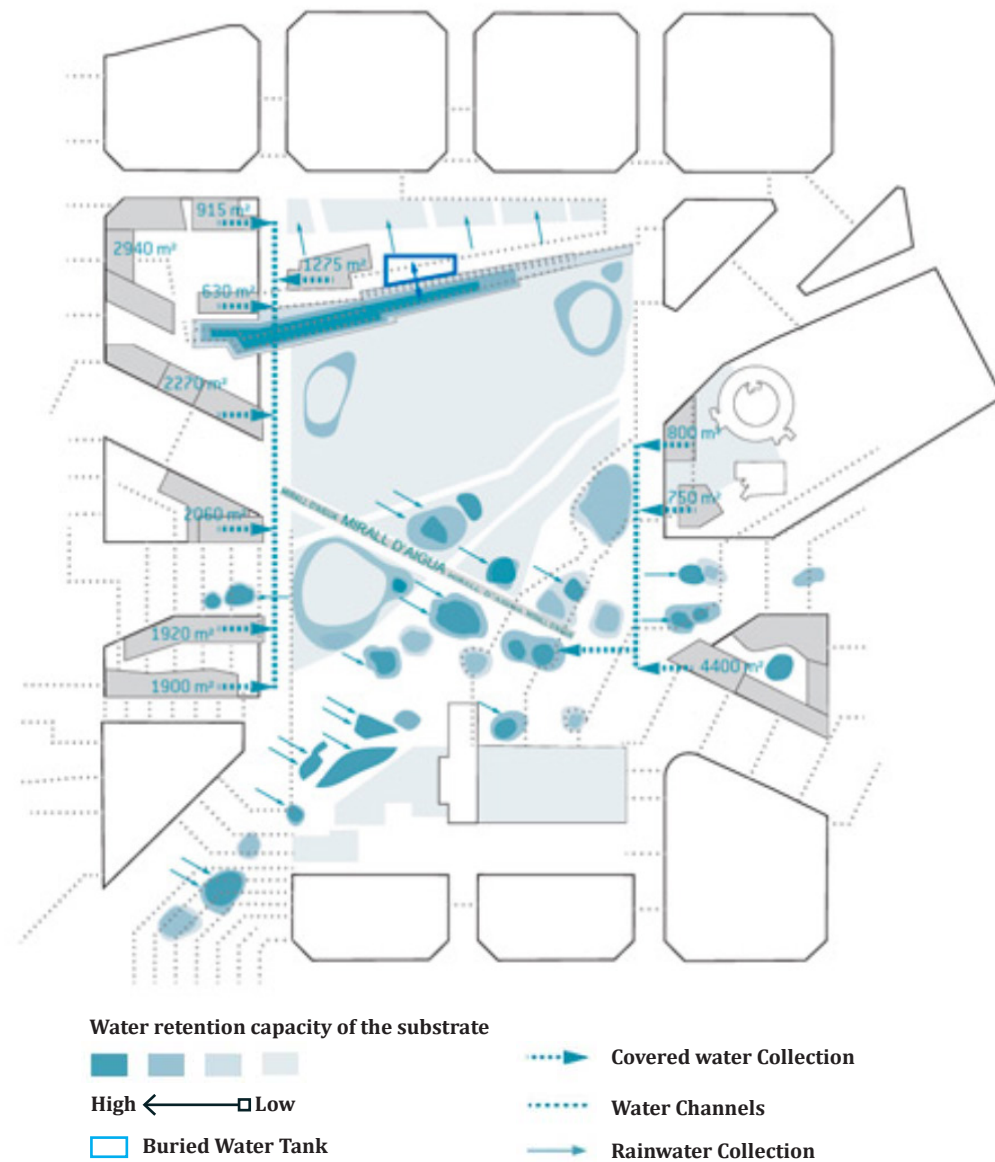
Apart from the mentioned features and developments that Glòries faced to it during its life, and also mentioned avenues which are creating easy access and dynamic area in the whole metropolitan, there are also some other characteristics that promote the uniqueness of the space.

One of the interesting and notable features in the development of the area is its improvement speed which is based on the “Human Speed”. Human Speed development is a specific word created by the author in this thesis which is coming based on the “Boiling Frog Theory” due to the everyday experience of the area for more than six months by the author itself

with different transport systems from walking, skating, biking, private car and also public transportation.

The boiling frog theory is a story describing a frog being slowly boiled alive. The idea is that if a frog is put suddenly into boiling water, it will jump out, but if the frog is put in lukewarm water which is then brought to a boil slowly, it will not perceive changing the temperature and will be cooked. This theory is based on the idea of adaptation to the environments that is an important feature in this thesis. This thesis assumes the urban area as water and studied the adaptation process of the inhabitants and residents to urban renewal, developments, and changes.

As far as mentioned before the human speed development which is a creative word for this thesis is coming from the real experience of the day by day development’s observation of the Plaça de Les Glòries Catalanes by the author during the six months. It helps the author to feel the adaptation of the inhabitants to the coming changes. All the developments process from deconstructing, creating new access, developing the Canòpia Urbana, developing main thoroughfares, and promoting healthy mobility and like are happening in parallel and almost at the same time which is visible in Photo No. 58 on page 281. According to Photo No. 58, the new access on the surface of the area is finished and utilized while the deconstruction of the ring was in process. This method of urban renewal helps the residents and users to accept the changes and gets adapted to the new environments easily because it will not change their manner of routine immediately and it happened during the time, slowly and automatically.

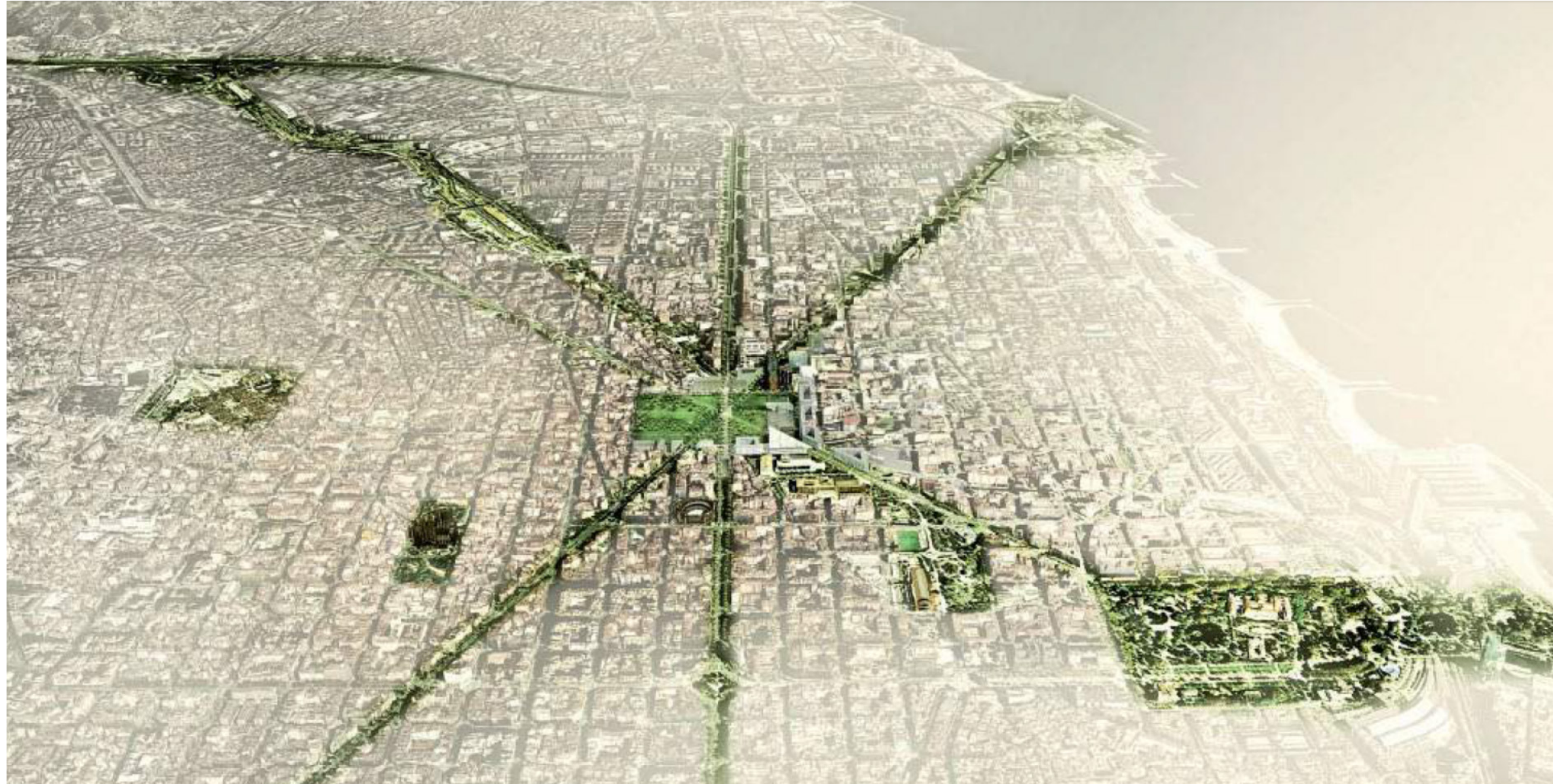


Drawing No. 80: Management of Water, Plaça de Les Glòries Catalanes, Ajuntament de Barcelona, 2012

According to the criteria that an urban park is following one of the main features of an urban park is its water system which is even a structural and primary element for having an urban park. In the case of Glòries, as it can be seen in the current drawing, the water system in the area has been systemized to collect and channeled surface water and rainwater into the burial water tank and then use it for irrigating the area and alleviating the climate by using them in the fountains and playgrounds and create a sense of freshness. On the other hand, the indirect connection of the Glòries to the Mediterranean Sea by Diagonal avenue and water system of the Green Diagonal and Glòries area together form the water structure of the whole Glòries Urban Park.

According to the studies that had been done in this thesis, Plaça de Les Glòries Catalanes is a notable opportunity for the creation of an urban park in the Barcelona metropolis. It is not just the Glòries itself that follows the criteria of an urban park, although its surroundings should be added to complete the idea. The focal position of the Plaça de Les Glòries Catalanes in the Barcelona metropolis that improves the opportunity for creating a new center and also its connection with the important thoroughfares support the accessibility, integration, and expansion of the area into the whole metropolis and creating a dynamic space.

On the other hand, as far as mentioned at the first of the current chapter about the urban pattern, the future cities will not have one rich center and poor periphery, thus it is important to improve different centers in the city from economic to greenery and like which are connected and work together. Therefore, Glòries as a new center for Barcelona metropolis meets the cultural, economic, and greenery needs of the residents and by implementing aimed urban



Drawing No. 81: Depiction of the Future Urban Park in Barcelona Metropolis with Glòries in its Center, Ajuntament de Barcelona

patterns on it can serve as a great urban park in the scale of the whole metropolis.

The current drawing that demonstrates the future of the Glòries, is a great depiction of the possible future Urban Park in Barcelona with Glòries as the main core of it. As it is clear in the drawing, the future urban park alike from studied cases in the previous chapters that are following a rectangular or polygon shape is following a different and new shape. This new shape is compatible with the model introduced in this thesis for the urban area as an Urban Star model. This thesis is using the introduced urban models (Urban Star, Urban Galaxy, and Urban Star-Galaxy model) as a prototype for implementing the innovative Urban Greenery System called Urban Parks into the metropolises apart from the shape that the cities are following.

In the case of Glòries, facilities are not situated just in the center, however, the center may be the most highly dense area but actually, the facilities are spread along the main streets which are connecting the Glòries to the rest of the metropolitan. The spreading of the facilities programmatically along the radius of the star core also improves the sense of continuity and perspective of the Glòries into the whole metropolis as well as improving the integration of the area into its surroundings and even the whole city.

Also, applying the Star Model as a new prototype for the Urban Parks supports the efficiency of these contemporary parks and green spaces due to their great integration into the urban fabrics. On the other hand, it will create a new model different from any other model which is available and provides a space that is accessible for everyone in the society and creates a nice contradiction and at the same time harmony between the park and the urban fabric.

One of the key aspects of an urban park is to create a space in the city to help the residents relocate from the city inside the city and imagine themselves in nature. But an important thing is that it should follow a subtle way of creating contradiction as well as creating harmony and getting well connected to the urban activities. Glòries Urban Park with its unique shape is following the characteristics of a dialectic landscape concept. Generally, it creates a model that is different from the Barcelona urban pattern and provides a subtle contradiction however it is extracted from the grides of the city and follows a harmony with urban texture and activities.

However, the new prototype seems unlimited or in other words, it is not restricted to any park's wall around but it is controlled by the edges of the city and also provides free access to the whole urban park. It spreads in the metropolis and provides access to all the inhabitants. The star model of Glòries Urban Park is also extending the concept of symmetry but not the mirror shape of it. Based on the root of the symmetry that is coming from the Greek word as "Symetria" which is composed of "syn" that means together and "metron" that means to measure it reveals a harmony between the parts of an object and the way of a combination of several parts. Therefore, Glòries Urban Park is creating harmony between different directions of the metropolis in the field of greenery, promote picturesque style and also encourage the inhabitants to move along the radiuses to reach the core in the Plaça de Les Glòries Catalanes.

Glòries Urban Park also has a great effect on the climate comfort of the area and creates a moderate environment in the heart of the harsh metropolis which extends through the

whole urban area. It helps to meet the needs of the inhabitants to nature in a subtle way and works as the texture of the urban fabric that connects different nodes, parts, centers, and elements of the Barcelona metropolis together.

Greatly integration of the Glòries Urban Park into the Barcelona metropolis like warp and woof of the urban fabric creates a high potential and dynamic area which is open for further developments. Therefore, during the time and according to the needs of the habitants the radiuses of the star model could get longer, more, and even thicker with necessary facilities along with them. In the case of the Glòries Urban Park, the human speed development theory gave it a perfect and unique character in a way that provides an ongoing project that will never end or in other words, it is an ending never ended project which is happening in the urban scale and for the urban scale. It encourages the residents to have actively participated in the development process and adapt to all those new facilities, renewals, and changes that are happening to their living environments.

On the other hand, Glòries Urban Park can be identified with a complex of facilities and greenery that promote the curiosity of the visitors and work like navigators to the core of the star and Barcelona metropolis. It provides a space for everyday use of the residents without any plan in a way that the inhabitants just find themselves inside the urban park while they are just moving through their daily routines or on their way to work, school, and like. It provides a sequential experience along its radiuses that leads the visitors to the main core of the urban park or to the important elements of the edge of the city that created the territory of the urban area such as the Mediterranean Sea and Collserola mountains and like.

And finally, Glòries Urban Park is a significant example of the new generations of urban parks. It cuts the limits and introduced a new prototype for urban parks that meets the needs of the built cities of the twenty-first century. It is not occupying a massive area in the heart of the city like Central Park or not on the one edge of the city like Parc de la Villette. It is a contemporary model of urban parks that are coming out of the urban fabric and create a remarkably integrated prototype for the next generations of the urban park. In a better word, it reveals a great definition of urban parks which is a green urban area inside the urban area.

CONCLUSIONS

In the context of this study Urban Park is providing the urban area with a new model of park that is following a specific program in different aspects of accessibility, facilities, infrastructure, vegetation, and circulation. This thesis studied Urban Parks as the efficient type of greenery for the cities of the current or even the future centuries. Research objectives that established at the first of the study helped the thesis to find how to achieve the research aim and therefore provide answers to research questions. Research questions with the aim and objectives support the author to find important and essential principles that an Urban Park should follow. Also, help to detect the similarities and differences between them in different periods. Therefore, the study ends in coming up with a prototype for the urban park that is appropriate to implement into the current built urban areas.

One of the primary features that an Urban Park should follow is related to its scale. The scale is essential and has an active role in the efficiency of an Urban Park and can vary to different dimensions based on urban dwellers' demands. The scale of Urban Parks should be equitable enough to be able to support the whole urban residents' desires and requirements to the green areas, facilities, leisure, and like. In this case, it cannot be that much small like green parks or playgrounds that just support their neighborhoods and should have the potential of accepting and serving the visitors of the whole city.

Besides, the new generation of Urban Park, unlike the old ones, should not necessarily follow a regular geometric shape. Currently, because of the high rate of immigration to the urban areas, they are facing a lack of spaces, therefore, the strategy of implementing greenery in the

cities should be in a reasonable manner and based on the existing requests. According to the current study, Urban Park can be one of the efficient types of parks and green areas for the cities apart from their size. Therefore, it must follow a system to be applicable in the existing built urban fabrics and with no necessity of a wide vacant space like Central Park of Manhattan. It can follow the Star Model similar to the Glòries Urban Park system in Barcelona and penetrate the urban texture to create a space that seems dissolved in the urban fabric. In other words, the new generation of Urban Parks like Glòries Urban Park is not just one single space and it is a connection of different specific and highly potential spaces together which are integrating into the urban fabric under the provision of a well accurate program.

Another key factor that affects the efficiency of an Urban Park is related to its location in the urban fabric. Location is essential because Urban Park is implementing a new system of greenery with diverse facilities in the urban fabric. It provides the chance for relaxation and using the services and positive effects of the greenery system for the whole city and inhabitants apart from their social classes. Former models like what we see in Central Park, La Villette Park, and like, are located at the center or edge of the municipality however the new generation of Urban Park is following a different placement. Based on the idea of decentralization in the urban areas, this study had suggested a pattern for an Urban Park as a system that is trying to cover the whole city and not just concentrated in one center. It can be placed everywhere in the city from the center to the edges but with the maximum connections and integration into the urban fabric in a subtle and unsubtle manner. This thesis suggested Star Model for the smaller scale urban areas and Star Galaxy Model for the metropolitans. Based on the Star Model an Urban Park will serve the city with a green core that is located at an

important node of the city and spreads the arm of the star along the arteries (main thoroughfares) of the city that will end at the core of the star.

According to the suggested model for Urban Park, the purposed park must facilitate easy accessibility for urban dwellers. To have a successful and effective Urban Park it is important to provide wide, variable, and stress-free accessibility thus all the inhabitants can enjoy and use the space simply. In a simple word, Urban Park should follow a model of none walled around the park perimeter and created an undefined entrance. The suggested urban park model will provide the chance of expanding the green areas into the urban fabric systematically that exist the vast accessibility into it and in the scale of the whole city. The current model with undefined and free entrances will improve the efficiency of the Urban Park and create a dynamic space for everyone and everyday use.

However, accessibility is essential in the designation of Urban Park but how to access it, is also a key factor. Urban Parks or generally green areas in the cities are serving the urban texture with a healthier space. Therefore, the purposed Urban Park should develop healthy mobility in urban areas. It would be possible by promoting a system of creating accessibility limitations to private cars and improving public transportations. It has to provide the chance of transforming the use of private vehicles to the public ones and give the priority of access to pedestrians and healthy transports such as cyclers and scooter riders. In other words, the city of the future is a city without cars, focused on the environment and social use. The purposed urban park should provide a platform for the transportation system that uses the capability of the existing infrastructure and expands the use and interests of healthy

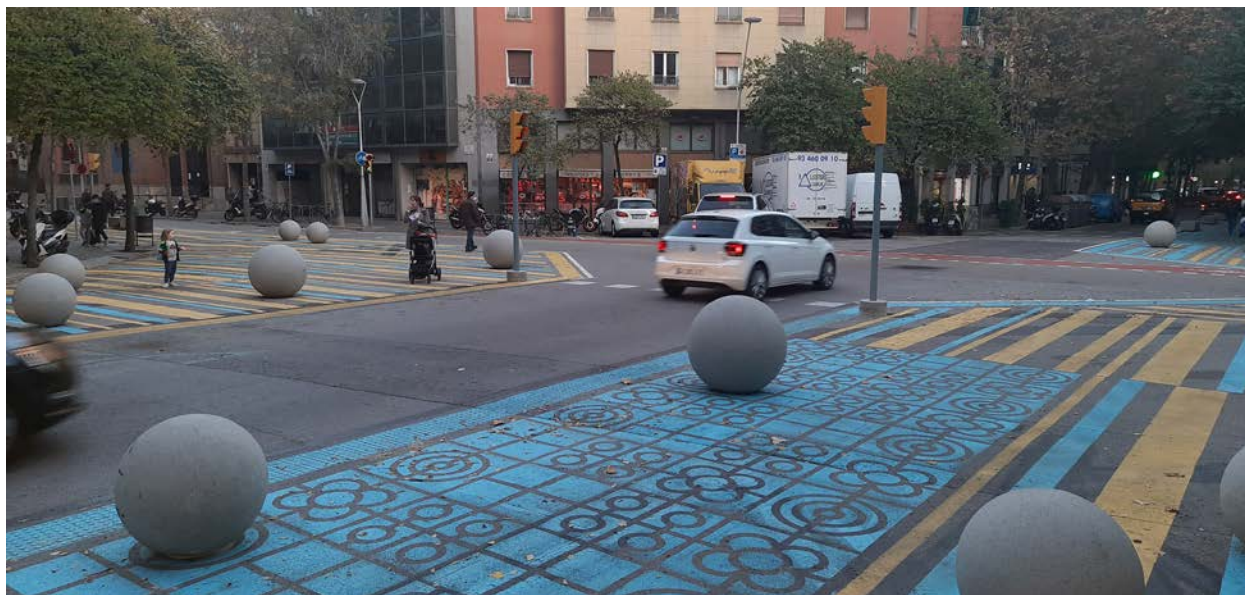


Photo No. 60: Application of Tactical Urban Planning at the Intersection of Consell de Cent and Rocafort Streets, Photo by Author, 2020

mobility. It should create a permeable space that is adopted with the pedestrians' movements and integrated with the transportation system to develop the interests of the dweller for using public transports.

The idea of pedestrianization can relate also to the proposal called “Tactical Urbanism” by Xavier Matilla the chief architect of Barcelona, who designed a new model of mobility for Barcelona by the deployment of bike lanes, pedestrian areas, or superblocks. Tactical urbanism that is the new urban project of city hall that began a few years ago has reached its peak in recent months due to the Covid-19 crisis. Since the streets were empty, emergency renovations have been carried out to cover the extraordinary need for space to meet social distance. Entire streets have been handed over to pedestrians, car lanes have been turned into wide sidewalks and some top speeds have been reduced to pacify urban space. All these changes have been accompanied by bright colors and large obstacles that seek to delimit the new boundaries between cars and people. According to this model, the yellow lines mark the sidewalk extensions and the blue paint limits the areas for cyclists. On the other hand, in other areas of the city, the pedestrian areas are interspersed with lines of these two colors and the bike lanes stand out for being red. Specifically, the new plan aims to reduce private vehicle journeys by half a million by 2024, according to the Department of Mobility. If currently, 26% of trips are by car or motorbike, it is intended that in four years this percentage has been reduced to 18%, in favor of public transport, cycling or walking.¹⁶⁰

¹⁶⁰ G. Sindreu i Cladera, B. Posas Rodríguez, M. Suy i Saurina. Urbanisme tàctic: el de sempre, però en colors. Diari de Barcelona. [Online]. Barcelona 2020. [Accessed: November 2020]. Available at < <https://www.diaridebarcelona.cat/w/urbanisme-tactic-semple-pero-colors> >

A. Carnicer, S. Grimal. L'urbanisme tàctic: adaptar i transformar la ciutat d'urgència per la pandèmia. TV3 i Catalunya Ràdio. [Online]. Barcelona 2020. [Accessed: November 2020]. Available at < <https://www.ccma.cat/324/lurbanisme-tactic-adaptar-i-transformar-la-ciutat-durgencia-per-la-pandemia/noticia/3056906/> >



Photo No. 61: The Concrete Benches Divide the Space Between Cars and Pedestrians, Rocafort Street, Photo by Author, 2020

Creating a permeable space is not just limited to the transportation system, and contain different positive developments. Urban Park should be a dynamic and permeable space that is exposed to future positive developments and growth based on the desires of the dwellers and city. It would be more efficient if the development and growth of the park follow the concept of Human-Speed development that is slowly, little by little, and by time improvements. The concept of Human-Speed development will provide the opportunity of easy adaptation to the new urban spaces for the urban dwellers and also give them the chance of participating actively in the development process and promote the sense of belongings to the area. Even though this model of development will improve the adaptation of the dwellers to the urban renewals but it is also important to be aware of the time and cost conserving for the result. Therefore, even though the urban park is a never-ending project generally, but it is also important to have a calendar for the final look of the project with an open end for small-scale renewals.

The models suggested in this thesis (Star and Star Galaxy Model) for urban parks will provide a permeable and dynamic space in another way for further developments. In the Drawings which are available on Page 312 and 313, a comparison between two case studies of this thesis is available that demonstrates the predicted and performed green spaces. Manhattan was predicted to have limited tiny urban green areas over the island. The performed green areas in Manhattan Island creates the sense that all those tiny green areas gathered and created one huge one as Central Park (apart from their area in comparison with Central Park) in the heart of the island. To serve the whole island with the urban greenery beneficiaries more greens areas added to the urban fabric individually and with no connection to Central Park.



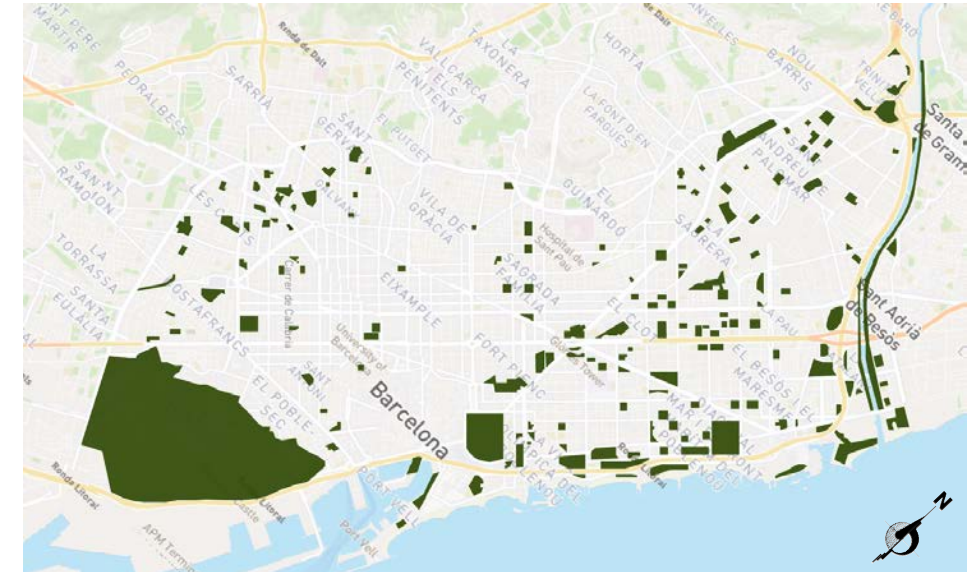
Drawing No. 82: Predicted Green Spaces designed by J. Randel Jr. in the 1811 Master Plan of Manhattan, By Author, SC 1:117000



Drawing No. 84: Performed Green Spaces in the 2019 Plan of Manhattan, By Author, SC 1:117000



Drawing No. 83: Predicted Green Spaces designed by I. Cerdà S. in the 1860 Master Plan of Barcelona, By Author, SC 1:117000



Drawing No. 85: Performed Green Spaces in the 2019 Plan of Barcelona, By Author, SC 1:117000

On contrary, Barcelona was predicted to have huge green areas in the city and tiny ones within the blocks. The performed green areas in Barcelona creates the sense that predicted huge parks had been broken down into many small scale green areas which are spread all over the city. Based on the comparison that had been done in this thesis between Manhattan and Barcelona city blocks, it appears that corners and less dense urban texture of Barcelona formed the possibility of implementing more green areas inside the urban fabric. However, Manhattan by having a denser urban texture can have the opportunity of providing huge linear green areas mostly on the edges of the island with limited tiny ones within the blocks.

As far as mentioned before the Urban Park should use the existing infrastructure but it does not contain just the transportation system, also includes a vast complex from transportation to small-scale facilities and urban greenery. Models suggested by this thesis will provide the opportunity for the urban areas to use also the existing green areas and add them programmatically to the urban park system. As a result, all the neighborhoods will be participating and benefitting the effects of green areas for their residents. This new system will create a smooth flow of urban greenery into the urban fabric that needs to improve by creating a sense of direction and navigation for it to avoid confusion for the users of Urban Park.

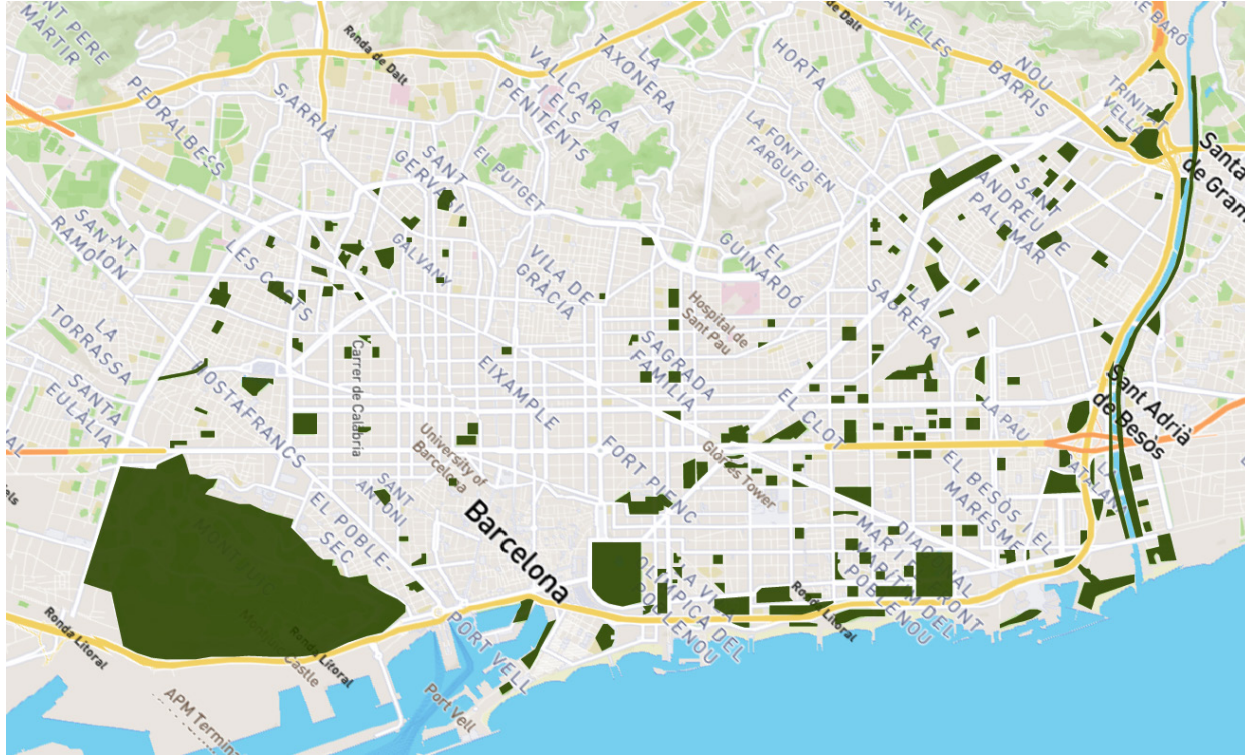
A method that can be used in the Urban Park system to avoid confusion belongs to the use of Follies. Follies are elements that provide a sense of navigation as long as continuity and perspective into the area that origins from Persian Gardens Philosophy. Proper selection of the specific vegetation for the Urban Park as well as improving the efficiency of the area will work as an identifier and play the role of navigator in the cities. The specific selection of the

vegetation and services also gives a unique identity to the Urban Park in the city and created a distinctive space.

According to the Models suggested for urban parks in this thesis the concept of decentralization will come up again for the Urban greenery core. Decentralization in the urban greenery system will improve the idea of creating balance and harmony in the different parts of the city. Barcelona based on the information from the Drawing No. 86 is creating a platform for a bigger concept of decentralization and harmony in the city. Proof of this assertion is available on Drawing No.87 which shows clearly the urban greenery of the future Barcelona. It creates a system that connects the green areas of the city following the Star Galaxy model and integrated into the urban fabric.

This model of future Barcelona improves the concept of Barcelona Park that benefits also from the Collserola mountains and connects them into its system. Integrating the Collserola mountains into the Barcelona Park system will improve the sense of continuity and endlessness with no man-made borders for it. Barcelona Park will also develop the concept of the garden city by Cerdá for Barcelona metropolis in a contemporary way. According to the case studies, suggested models, and information provided by this thesis, the Barcelona Park concept can be a proper example for Urban Parks and urban greenery systems of the built cities and metropolises.

The purposed Barcelona Park and also improves the notion of sustainability. Future Barcelona Park by providing shadows will provide climatic comfort and improves biodiversity and environmental sustainability. These improvements will provide a significant platform for



Drawing No. 86: A Look to the Currently Available Green Spaces in the Barcelona Metropolis, By Author, 2019



Drawing No. 87: Future Green Spaces System Based on the Star-Galaxy Model in the Barcelona Metropolis with the Concept of Barcelona Park as the Newest Generation of Urban Parks in the Built Cities of the 21st Century



Drawing No. 88: Improving the Climatic Comfort and Biodiversity in the Glòries Core of the Future Barcelona Park, Ajuntament de Barcelona, 2012

social and economic developments in the city by increasing the interaction and communication between inhabitants. Drawing No. 88 shows how the greenery will improve the climatic comfort and biodiversity in the Plaça de Les Glòries Catalanes. Moreover, Plaça de Les Glòries Catalanes which is one of the main cores of the future Barcelona Park can be generalized to the whole park area and clarifies how Barcelona Park can improve biodiversity and provide climatic comfort in the harsh Barcelona urban area.

On the other hand, in the field of biodiversity Barcelona Park by providing sufficient greenery will also provide a safe and suitable space for urban wildlife such as birds species. They will give the city a nice and relaxing appearance and also promote the relationships between humans and wildlife which promotes and develop animal supporters' tendencies.

Barcelona Park or in general term this model of Urban Park in the metropolitans will add colors to the city and provide a colorful urban area inside the gray urban area. The Photos No. 62 and 63 which are available in the following pages show Passeig de Sant Joan and Calle de la Marina which are two parallel main streets with the same size and orientation in Barcelona metropolis with just 500m (5 city blocks) distance from each other. Passeig de Sant Joan demonstrates perfectly how the future Barcelona Park can change the look of the streets, add colors, and bring greenery to the city.

Architect Lola Domènech who is the manager of the redevelopment of Passeig de Sant Joan described that Cerdà planned a few main routes of 50m with central road and sidewalks with double alignments of trees inside the urban structure of streets of 20m. Therefore, the new proposal of remodeling of Passeig de Sant Joan suggests two fundamental aims, prioritizing



Photo No. 62: Passeig de Sant Joan as a Biological Urban Corridor, Barcelona, Photo by Google Map, 2019



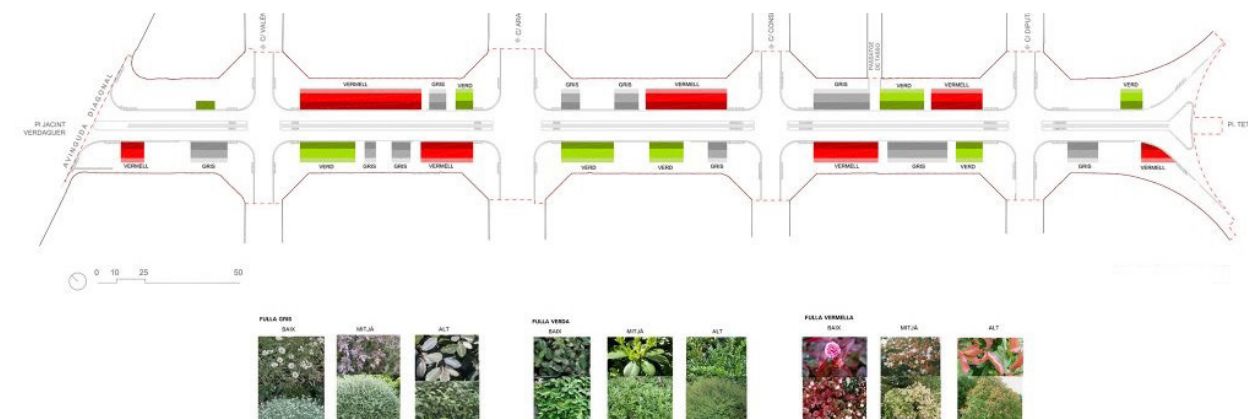
Photo No. 63: Carrer de la Marina as a Simple Thoroughfare, Barcelona, Photo by Google Map, 2019



Drawing No. 89: Urban Green Corridor of Passeig de Sant Joan, By Lola Domènech, 2016



Drawing No. 90: General Plan of the Greenery, Passeig de Sant Joan, By Lola Domènech, 2016



Drawing No. 91: Plan of Shrub Species, Passeig de Sant Joan, By Lola Domènech, 2016

the pedestrian use of the area and also turning it into the new green and sustainable urban corridor. To achieve the aim some basic elements were following that would be useful for the future developments in the other streets of Barcelona. Continuity is a key factor in developing Passeig de Sant Joan because it will guarantee the functional clarity of the axis along his route. In this case, the new section symmetrically extends the current sidewalks, from 12.5m to 17m wide, keeping the centenary existing trees and accompanying them with two new alignments of trees. Besides, it is fundamental to adapt the urban space to the different uses, therefore, it organized the 17m of sidewalks for pedestrian use and also added some wooded zone which is used for benches, infantile games, and bars. With this proposal, everyone wins: the children, the elderly, the neighbors (who gather in the cool of summer nights on the cozy benches in the halls), the shops and the bars (what a pleasant environment to carry out their activities!), bicycles and even motorists attentive to the gratifying change of atmosphere that has been operated, perceptible driving through the ride. It provides an appropriate place for everyone with their privacy, in a group or individual that can be suitable for different activities without ever creating conflict. The atmosphere achieved generates remarkable civic behaviors: some read, others talk, children play in the designated places or any environment, children and adults draw on the blackboards that the project has implanted, and besides there is urban traffic - peaceful. The author circulates mitigated by the imposed harmony and the contemplatives find their place to meditate, even with the help of the birds.

On the other hand, Drawings No. 90 and 91 show clearly that Passeig de Sant Joan is a green urban corridor that provides natural shadow by two new alignments of trees join on both sides of the existing woodland. The incorporation of a system of autochthonous shrub ac-

companying this woodland (what we see as the layering method in Central Park) will help to prosper the biodiversity and the subsoil and prepare a space to attract urban wildlife. It will provide the city with seasonal sensations, colors, smells, and in general terms a natural environment in the big city. As a result, Paseo de St Joan has recovered his social value as a green urban corridor, considering at the same time key aspects of biodiversity and sustainability that are a significant part of the future Barcelona Park. All the gratifying qualities of Passeig de Sant Joan have in a short time made it considered an emblematic place of Barcelona and placed it on the map of international references that are worth taking into consideration.¹⁶¹

In sum, Urban Park is not just a defined space with a regular geometric shape, it is a system of green spaces with a complex of fundamental elements. It covers the whole city programmatically and is extracted from the urban fabric. It is a complex of different parks, facilities, and transportation that are following a defined system with programmed characteristics for creating Urban Park in the metropolises. Implementing the new system of greenery in the urban areas will create a unique green urban space inside the harsh urban space, improve the leisure and healthy environments for the citizens of all the classes, promote healthy mobility, and improve the quality of the urban environment.

And as a final point, the new generations of urban parks can be known as the contemporary paradises on the earth. These contemporary paradises are providing a safe area to enjoy the

¹⁶¹ L. Domènech. "Remodelación Del Paseo De St Joan. Fase 2". Metalocus. [Online]. Barcelona 2015. [Accessed: November 2020]. Available at < <https://www.metalocus.es/es/noticias/remodelacion-del-paseo-de-st-joan-fase-2>>.

Lola Domènech. Remodelación del paseo de st joan, f2, bcn. [Online]. Barcelona 2016. [Accessed: November 2020]. Available at < <https://www.loladomenech.com/es/proyecto/refurbishment-passeig-de-st-joan-boulevard-phase-2/>>.

greenery and birds singing and offer a nice place for leisure and relaxation in a harsh urban routine life. Urban parks as contemporary paradises in the urban areas will improve the level of satisfaction of the dwellers from the city environment by touching the spiritual and emotional aspects of humans and also improve the aesthetical appearance and pleasant sense of the cities and in general improve the quality of urban life.

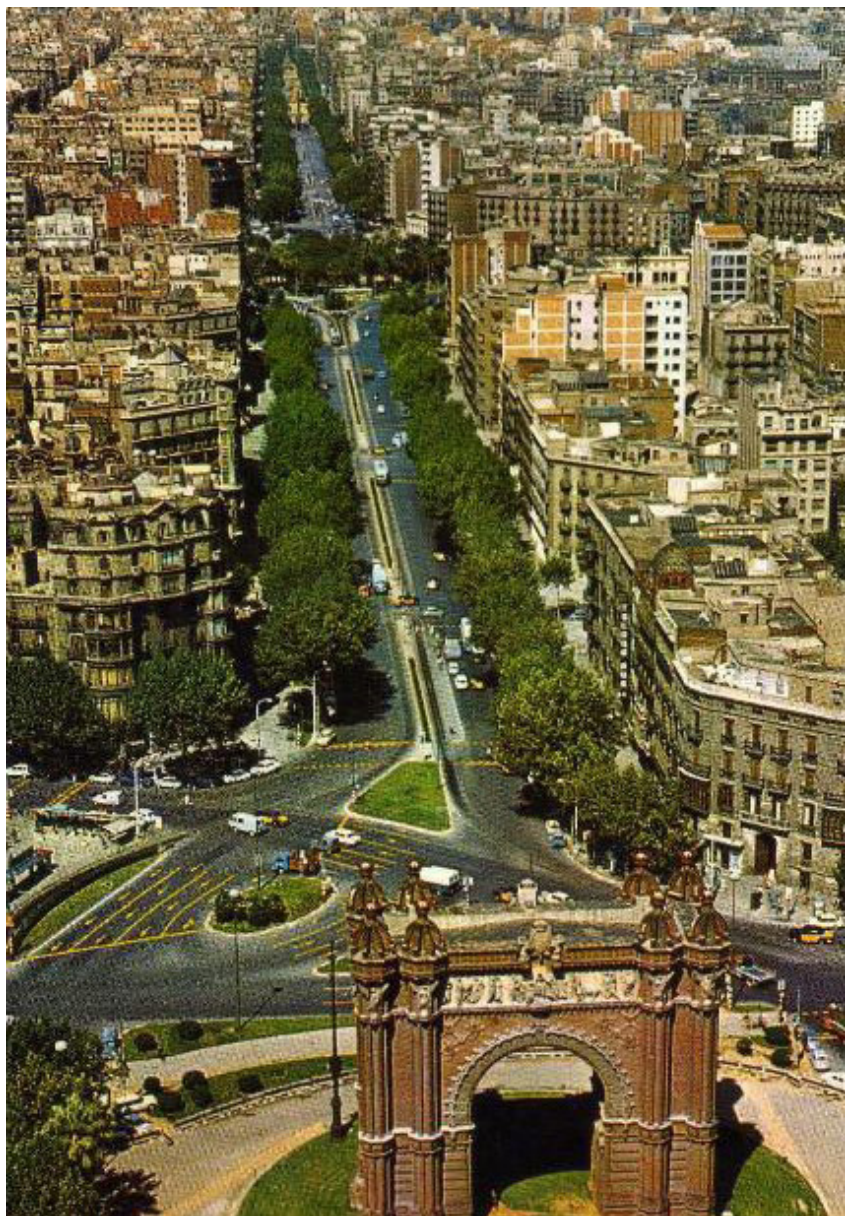


Photo No. 64: Passeig de Sant Joan, Barcelona, 2019



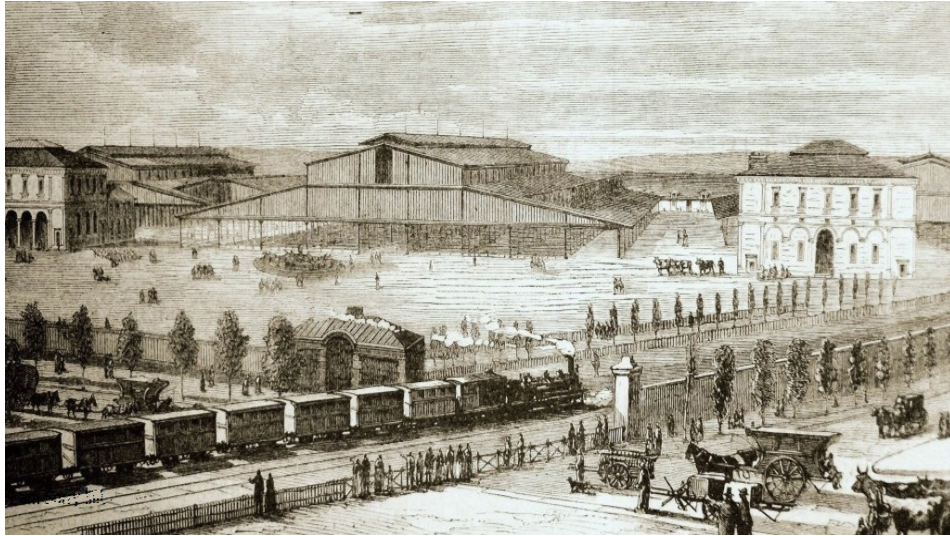
Photo No. 65: Carrer de la Marina, Barcelona, 2019

- **PARC DE LA VILLETTE, PARIS, FRANCE (1982), BERNARD TSCHUMI**

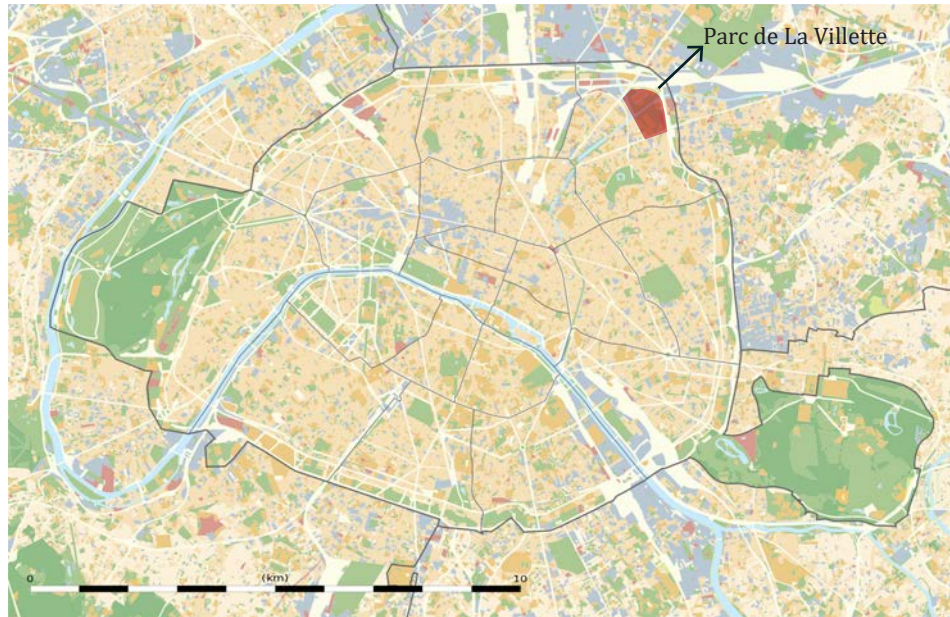
"It must be possible to solve the task of controlling nature and yet simultaneously create new freedom"

Ludwig Mies van der Rohe

In 1974 the French government decided to close the abattoir and cattle market of La Villette. This left a complex of about 55 hectares vacant in the center of an area which was housing millions of inhabitants and close to international roads and airports. The area was situated on two metro lines and next to Paris ring-road, therefore, it offered unique urban development prospects for the capital and the adjoining suburbs. In 1979 several development projects were proposed like: the Museum of Science, Technology and Industry, the park, the Grande Halle and the Music Center. This form of organization chosen by the French government because La Villette was to be a unique cultural project, both in terms of its size and the objective of integrating all the facilities in the park. In May 1982, the newly elected left-wing French Government launched an international competition for a new urban park in Paris. The Competition held on with pluralism and innovation as keywords and challenged the designers to symbolically represent these two important objectives. The keywords were chosen based on the concept of making Paris again the art center of the word. It was stated as a new departure, the brief called for a recasting of the traditional Parisian park around new notions of form and function: a park for the 21st century. Matching this ambition, 850 applications were registered and ultimately 472 projects from 42 different countries were submitted. The jury selected



Drawing No. 92: The Abattoirs of La Villette in 1867, Paris, France



Drawing No. 93: Location of the La Villette Park, Paris, France

9 joint first prizes for an unplanned second stage before Bernard Tschumi finally won the competition and built the park.¹⁶²

The project started from the brief's functional elements that would be atomized throughout the entire surface of the site to create conditions for unexpected encounters between, music, sport, technology, and vegetation. The main elements of the park, existing or planned, are inserted as found objects. The edges of the park are not designed with a precise interface, although the existing limits, an elevated motorway, a canal, and a major traffic artery were already clearly set.¹⁶³

In the field of cultural pluralism, La Villette is the park for meeting and uniting of cultures. In other word, cultural pluralism arises in the Parc de La Villette from the confrontation between art and science, music and technology, body and mind, nature and city, and between nationalities and like. Pluralism is expressed through the disjunction and dissociation of the program. Innovation in park design also comes out with this idea that La Villette is to be the park of the twenty-first century. Tradition, style, and innovation are connected therefore, landscape architecture must recognize its tradition because the function of tradition in creating new designs is that it gives us something to work with but also something that we can criticize and change. In La Villette Park a combination of familiar elements reveals something new in the way in which they are utilized. For example, the architectural signs of the park provide anchor points in the park, both for spatial

¹⁶² L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architecture and Natural Press. 1992, 322P, ISBN 907157010X.

¹⁶³ V. Ducatez. El jardín del placer de OMA. Translated by M. M. González. Colaborator S. Bustos, L. Espinoza. Urban Territorial Bitacora. 2005, Vol. 9, No. 1, P. 8-16.



Photo No. 66: A View to La Villette Park, Photo by A. Sanya

coherence and orientation and for the functional distribution of facilities and activities.¹⁶⁴

Generally, La Villette is a unique place of creation and invention in French which is designed by Bernard Tschumi in an industrial wasteland and changed it into an urban cultural park for the general public usage that attracts millions of residents and tourist yearly.

¹⁶⁴ L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architectura and Natural Press. 1992, 322P, ISBN 907157010X.



Photo No. 67: Southern Part of Meadow, La Villette Park, Photo by La Villette Official Website, 2004



Photo No. 68: Cinema La Géode Imax, La Villette Park, Photo by A. Fainsilber, 1986

LA VILLETTE FUNCTION

Actually, La Villette Park offers many different activities to visitors to the park. It is the houses of museums, concert halls, live performance stages, and theaters as well as playgrounds for children and twenty-six architectural follies. It also include city, science, and industry that is the largest science museum of Europe, a theater inside of a 36 meters diameter geodesic dome, a museum of historical instruments with a concert hall, a concert area with 6300 seats, a flexible small concert stage with 600 to 1200 seats, a contemporary venue for pop, rock, folk music, and jazz with 700 seats and a place for world performance art and dance companies with lots of other spaces which is created to serve for different usage such as indoor and outdoor theaters and symphony hall. It includes activities that engage everyone with different cultural backgrounds, social classes, and ages.¹⁶⁵

In fact, La Villette Park is a contemporary composition of cultural expression where local artists and musicians perform exhibitions and concerts and also film festivals that happen yearly. On the other hand, the integration of the interior of the park with its surroundings is becoming possible through a convention center and Cinema La Géode Imax that connects the interior and exterior functions of the park.

One of the notable and interesting features of La Villette Park is its collection of ten themed gardens that play an important role in attracting a large number of visitors to the park. Tschumi scattered these 10 themed gardens throughout the large expansive site that people

¹⁶⁵ A. (Ed.) Papadakis. 1988. *Deconstruction in Architecture*. New York: St Martins Press. B. Tschumi Architect. 2008.

L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". *The Netherlands. Architectura and Natural Press*. 1992, 322P, ISBN 907157010X.



Photo No. 69: Dragon Garden, by François Ghys and B. Tschumi, 1998

would stumble upon either quite literally or ambiguously. It was a part of Tschumi's overall goal to induce exploration, movement, and interaction. Each themed garden gives the visitors a chance to relax, meditate, and even play. Each garden is created with a different representation of architectural deconstructionism and tries to create space through playfully sculptural and clever means. While some of the gardens are minimalist in design, others are clearly constructed with children in mind such as the garden of Dragon with the steel sculpture of Dragon for playing. Essentially these gardens are playing two important roles in the park function as some are meant for active engagements however the others are just for relaxation and nonphysical enjoyments and adding the picturesque style to the park.¹⁶⁶

The garden Fly designed by Bernard Tschumi takes its name from its equipment, games movements and balance is also the theater. Two domes allow two people at a distance of several meters to converse in whispers.

The garden of the Dragon is an 80m long slide. Although the dragon is for children, however, it is not uncommon to see adults using it.

The Bamboo garden contains a staircase that is lined with tiny cascades leading down to the Bamboo Garden designed by Alexandre Chemetoff, 6m lower than the rest of the park. The leaves of the trees range from gold to dark green. Their trunks are sometimes clear and sometimes black. Water is everywhere, falls in ribbons along a huge vertical concrete cylinder designed by Bernhard Leitner and play a strange electro-acoustic music.

¹⁶⁶ L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architectura and Natural Press. 1992, 322P, ISBN 907157010X.

A.(Ed.) Papadakis. 1988. Deconstruction in Architecture. New York: St Martins Press. B. Tschumi Architect. 2008.



Photo No. 70: Garden of Mirrors, by B. Tschumi, La Villette Park



Photo No. 71: Bamboo Garden, by A. Chemetoff, La Villette Park

The garden of Mirrors that is situated in the west of the Great Hall and designed by B. Tschumi is one of the great mysterious features of the park that attracts the visitors to walk through. It has been created by 28 concrete stones among Scots pine and maple trees. The walker who undertakings to the end of the garden will discover a dreamlike landscape reflected by 28 mirrors.

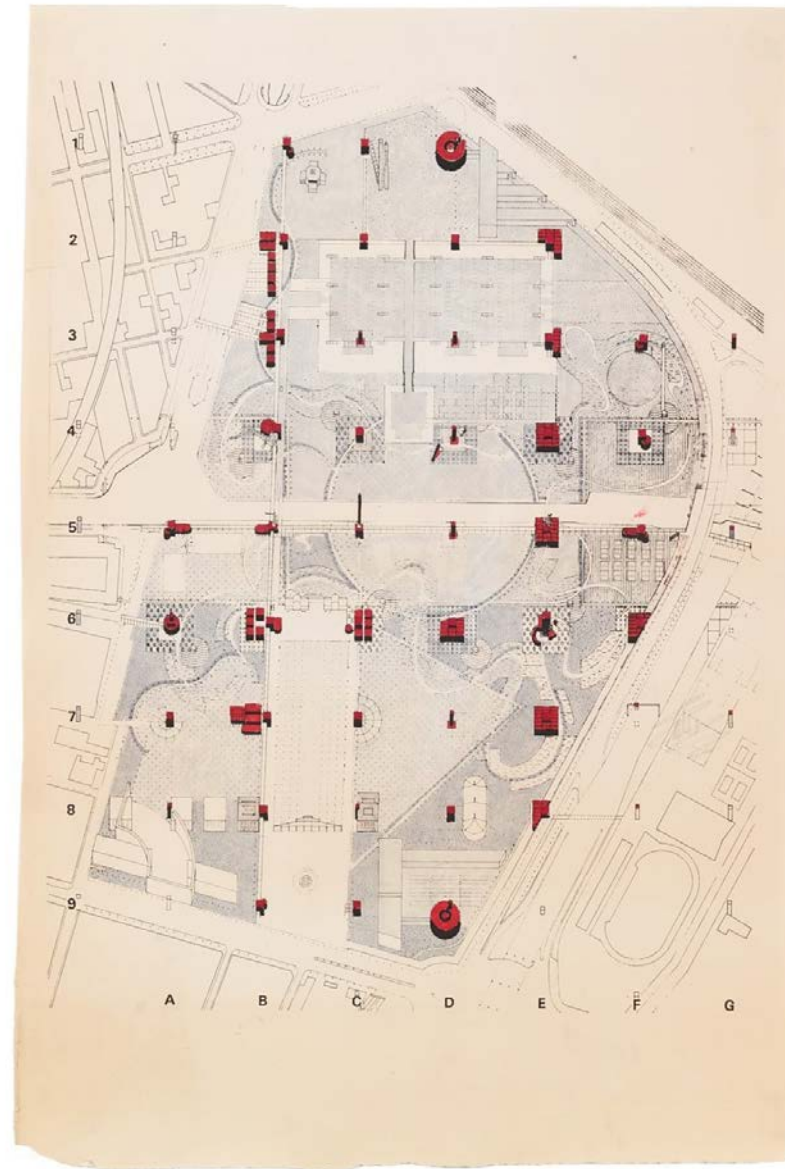
Another theme garden is Garden of Shadows designed by Ursula Kurz which is a grid with alternating slabs of mainly black, white or seemingly random. The garden promotes the appreciation of humor, friendliness or intimacy and reinforced by scholars games.

The changing colors of the garden of equilibria designed by B. Tschumi contain a large metal kites-like giant birds, among the vegetation.

The garden of the Treille designed by Gilles Vexlard, Latitudes North has 90 small fountains that are murmuring among grape vines and also Jean-Max Albert bronze sculptures are on the railing that overlooks the whole.

Actually, Tschumi tried to revive distant memories of the walker when he has to cross a mysterious forest of blue spruce and birch trees bathed in strange music by designing the garden of Childhood Fear. Also, the garden of Islands designed by Tschumi has driveways paved with black and white marble winding between small wooded mounds. At the heart of the garden, a thin layer of water flows over a large granite slab, reflecting light in the sky among the foliage.¹⁶⁷

¹⁶⁷ The Garden Guide. Parc de La Villette Paris. Garden Visit. [Online]. England, 2019. [Accessed: October 2019]. Available at< <https://www.gardenvisit.com/>>.



Drawing No. 94: Grids of Follies in La Villette Park

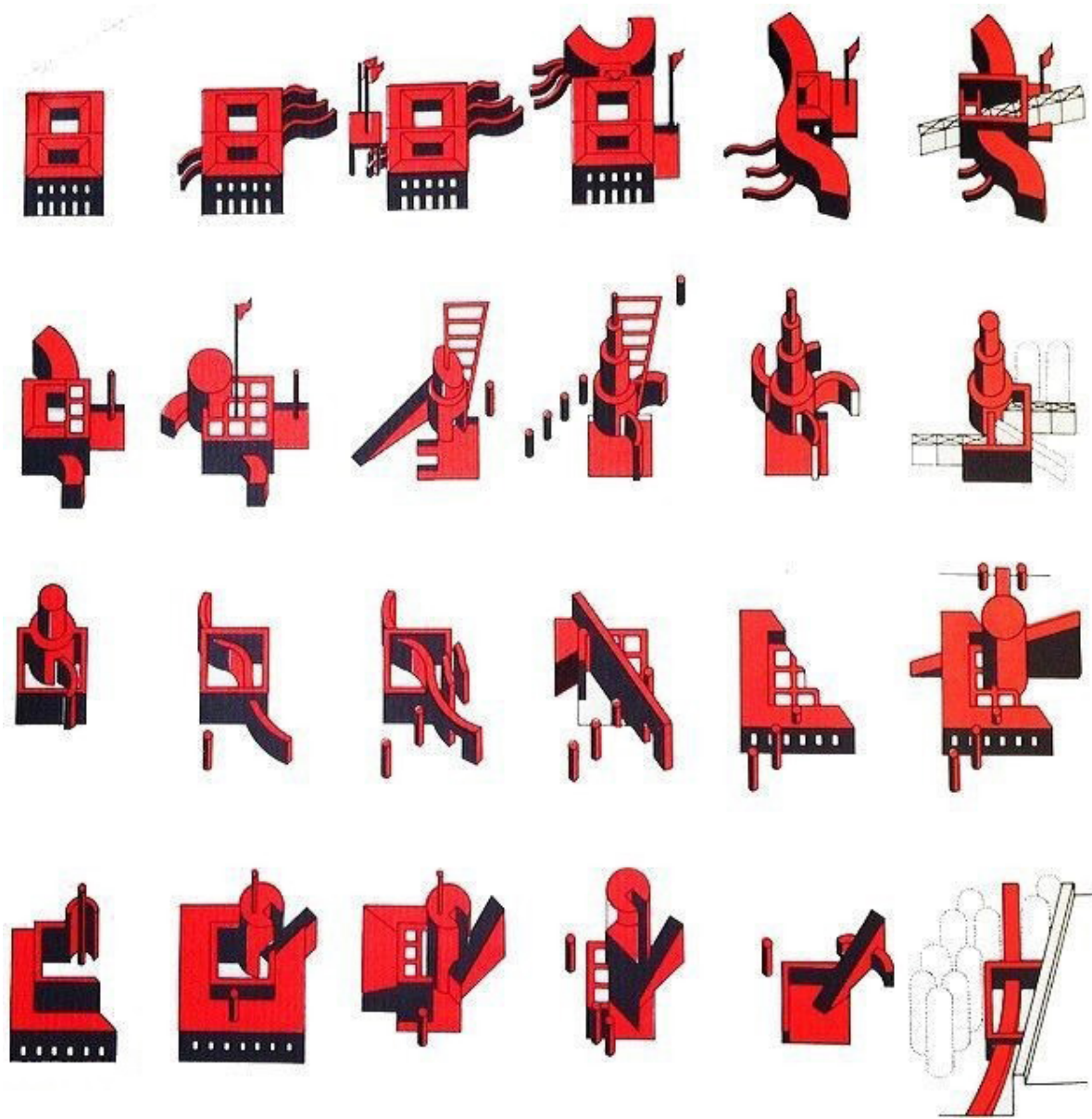
Probably the most iconic and remarkable pieces of the park are Follies which are architectural signatures and playing as a kind of navigation for the park and placed for certain a practice but playing as a kind of identity for the area which is placed in due to their unique styles. These small red cubic buildings are acting as architectural representations of deconstruction. Actually, Follies were designed firstly for decoration, but they suggested some other practices according to their location. Architecturally, the follies are meant to act as points of reference that help visitors gain a sense of direction and navigate throughout the space. Some of the follies have been renovated currently to house restaurants, information centers, and other functions associated with the park's needs that were not envisioned in the original design.¹⁶⁸

Actually, for Tschumi, La Villette Park was not just meant to be a picturesque park that indicated past centuries, it was more of an open expanse that was meant to be explored and discovered by those that visited the site. Tschumi, wanted the park to be a space for activity and interaction that would evoke a sense of freedom within a covered organization of Follies that would give the visitors points of reference and add help the whole area to be understandable as well as attractive.¹⁶⁹

¹⁶⁸ Barzilay Marianne, Hayward Catherine, Lombard-Valentino Lucette. "L'invention du Parc: Parc de la Villette". Paris Concours International 1982-83. Paris: Graphite Editions.1984.

L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architectura and Natural Press. 1992, 322P, ISBN 907157010X.

¹⁶⁹ E. Souza. "AD Classics: Parc de la Villette: Bernard Tschumi Architects". ArchDaily. [Online]. January 2019. [Accessed: November 2019]. Available at < <https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/>> ISSN 0719-8884>.



Drawing No. 95: Follies of La Villette Park



Photo No. 72: A Look to Some Follies of La Villette Park, Photo by M. Iftekher, 2018

DESIGN PRINCIPLES

The design principles for creating La Villette park can be identified as

- Protection, but also tangibility of sun, wind and rain;
- Privacy, but also intimacy;
- Safety, but also the challenge one experiences in exploring these limits, and in sometimes going beyond these;
- Calculability, but also something that remains unpredictable;
- The experiencing of contrast, and also the repeated recognition of something of the preceding of what follows;
- Orientation and the feeling of belonging, and also roaming and finding a way: exploration;
- Unity, but also the recognizability of separate parts;
- Readability of meaning, but also places with an elementary minimum of meaning, where all previously acquired associations fall away;
- Continuity and relationships in the spatial sense, but also distance and that which is difficult to bridge;¹⁷⁰

170 Tschumi, Bernard. *Cinégram folie, le Parc de la Villette* / Bernard Tschumi. Princeton, NJ: Princeton Architectural Press. 1987.

L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architectura and Natural Press. 1992, 322P, ISBN 907157010X.

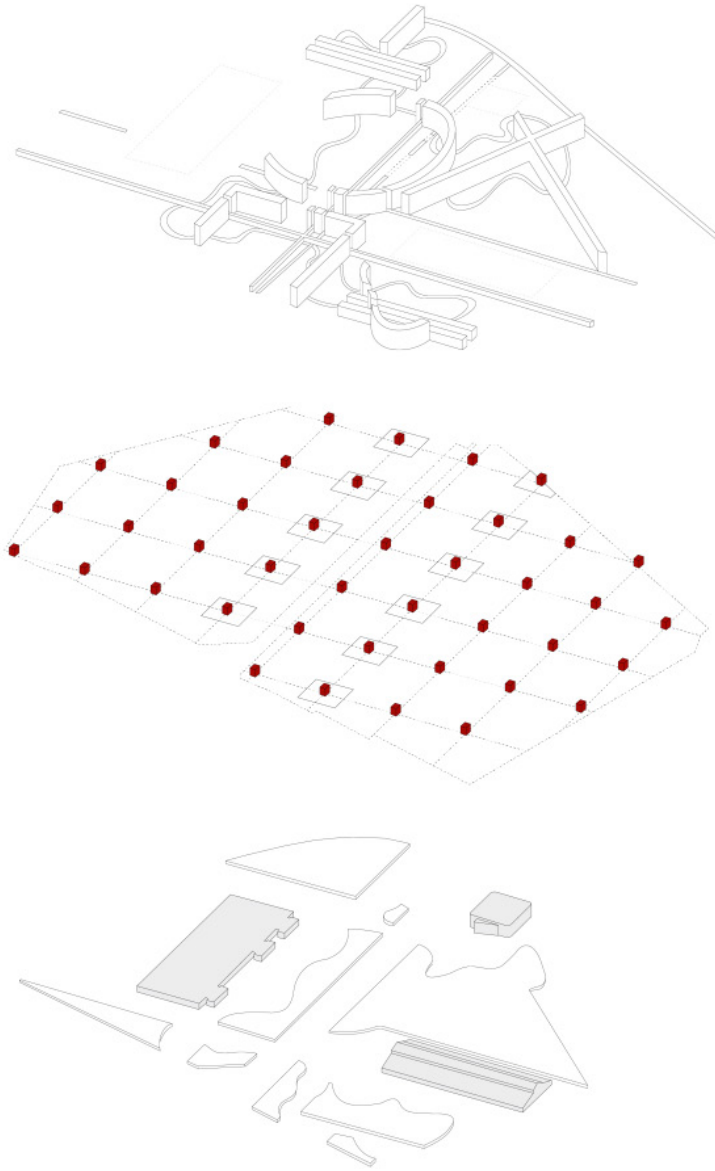
STRUCTURAL LAYOUT

Actually, Parc de La Villette is designed with three principles of organization for its structural layout as points, lines, and surfaces that each displays its own logic and independence. The superimposition of these three systems creates the park as it generates a series of calculated tensions which reinforce the dynamism of the place.

Lines or pathways are essentially the main demarcated movement paths across the park. Two covered walkways allow visitors to cross the park in a straight line: the north-south "Galerie de la Villette" and the east-west "Galerie de l'Ourcq". The "promenade des Jardins" or "cinematic walk", which are orthogonal systems winds its way around the entire park and guides pedestrian movement. The paths do not follow any organizational structure; rather they intersect and lead to various points of interest within the park and the surrounding urban area. The path through thematic gardens is an important feature of the park because it will interconnect the direct axes and provides unusual and unexpected meets with nature.¹⁷¹

Point or follies are other layers of the park, actually, The 135-acre site is organized spatially through a grid of 35 points, or what Tschumi calls follies. The series of follies give a dimensional and organizational quality to the park serving as points of reference. The repetitive nature of each folly, even though each one is unique and different, allows for the visitors to retain a sense of place through the large park. Each of the deconstructivist follies are centers for informal program and unlike the paths, follies are following an organizational structure

171 E. Souza. "AD Classics: Parc de la Villette: Bernard Tschumi Architects". ArchDaily. [Online]. January 2019. [Accessed: November 2019]. Available at < <https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/>> ISSN 0719-8884>.



Drawing No. 96: Structural Layout of La Villette Park, B Tschumi, Re-Drawn by Author, 2019

and These small red buildings are the architectural signatures of the park with 10x10x10 meters cubes which are repeated and make them unique. Follies are set out on 120-meter pauses, serve as a common denominator to the entire park and also can be changed to accommodate specific needs. Each folly is different in the field of functions but all the variations are deconstructed, reassembled and combined with other elements (stairs, shelters...). There is no center of hierarchy recognizable for this park; therefore the resulting grid gives an endless field of concentrations and developments in and out of the Park.¹⁷²

85 acres among 135 acres of the whole park dedicated to the green space or surfaces and formed another layer of the park. The large open green spaces give Parisians space to interact, play, relax, and gather. The open space is typically used for large gatherings and even in the summer, it becomes a large open-air cinema.¹⁷³

Generally, La Villette Park is often criticized as being too large that had been designed without consideration for the scale of a human and argued to exist within a vacuum as it does not take the history of the site or the surrounding context into consideration. However, with such a large site and the scale seems to be out of touch with the human, it becomes an analytical and conceptual approach to the way a human feels within a larger urban setting.

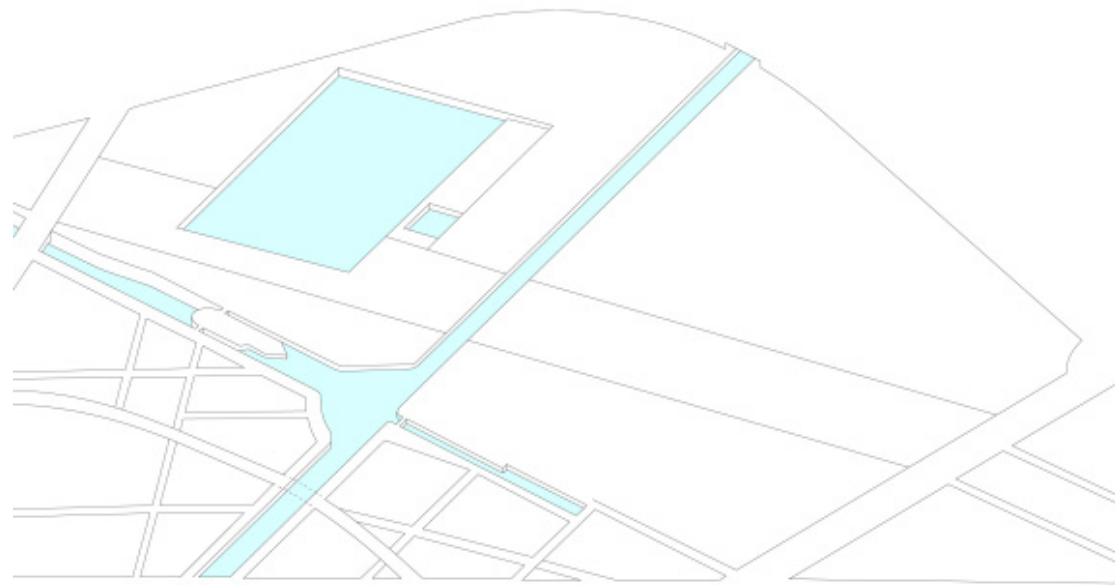
¹⁷² Orlandini, Alain. *Le parc de la Villette de Bernard Tschumi*. Paris: Somogy, 2001.

E. Souza. "AD Classics: Parc de la Villette: Bernard Tschumi Architects". ArchDaily. [Online]. January 2019. [Accessed: November 2019]. Available at < <https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/>> ISSN 0719-8884>.

¹⁷³ J. Daniel Pugh. "Parc de La Villette, Paris: The Site Description". September 30, 2004.

Orlandini, Alain. *Le parc de la Villette de Bernard Tschumi*. Paris: Somogy, 2001.

L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architectura and Natural Press. 1992, 322P, ISBN 907157010X.



Drawing No. 97: Water as a New Layer in La Villette Park, By Author, 2019

The park is almost an awkward repetition of urban life where the human is caught in the persistently overwhelming environment that removes humanistic sensibility to accommodate larger numbers of people.¹⁷⁴

However, just these three structural layouts had been introduced by Tschumi for designing La Villette Park but there is still one other significant and important element that can be identified as a layer of La Villette Park design in this thesis. This significant and basic layer is related to the water.

According to this thesis and based on the parks and gardens that had been introduced previously water is playing a significant and important role in the park design from Persian Gardens to Central Park and now in La Villette. Apart from the role of the other layers, water canals in this park are also playing as two perpendicular main axes of the park that forms the rest of the layers like what was happening in the Persian Gardens. It is also playing a fundamental role in the irrigation system of the park as well as dedicating an unlimited perspective view to it and connect the park with its surroundings and help for integration of the park into the urban fabric in a subtle way.

¹⁷⁴ E. Souza. "AD Classics: Parc de la Villette: Bernard Tschumi Architects". ArchDaily. [Online]. January 2019. [Accessed: November 2019]. Available at < <https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/>> ISSN 0719-8884>.

BIBLIOGRAPHY

- A. (Ed.) Papadakis. 1988. Deconstruction in Architecture. New York: St Martins Press. B. Tschumi Architect. 2008.
- A. Bhat. “QuestionPro, Quantitative Research: Definitions, methods, types, and examples”. [Online]. The USA. [Accessed: April 2019]. Available at < <https://www.questionpro.com/blog/quantitative-research/>>.
- A. Bryman, R.G. Burgess. Analyzing Qualitative Data. First Edition. London/New York. Routledge. Revista de Antropología. 1995, Vol. 50, No. 1, P. 232.
- A. Carnicer, S. Grimal. L'urbanisme tàctic: adaptar i transformar la ciutat d'urgència per la pandèmia. TV3 I Catalunya Ràdio. [Online]. Barcelona 2020. [Accessed: November 2020]. Available at < <https://www.ccma.cat/324/lurbanisme-tactic-adaptar-i-transformar-la-ciutat-durgencia-per-la-pandemia/noticia/3056906/>>
- A. G. Espuche, M. Guardia, F. J. Monclús, J. L. Oyón. “Modernization and urban beautification: The 1888 Barcelona world's fair”. Planning Perspectives. 1991, Vol.6 No. 2, P. 139-159.
- A. Kalantari. “Persian Paradise Gardens: History-Elements-Influences”. Faculty of the USC School of Architecture. The University of Southern California. August 2011.

- A. Parajuli, D. Pojani, “Barriers to the pedestrianization of city centers: perspectives from the Global North and the Global South”. Journal of Urban Design. England. Routledge Taylor & Francis Group. 2017. [Online]. Available at: < <https://www.tandfonline.com/loi/cjud20>>.
- A. Tate. Great City Parks. London. USA and Canada: Spon Press. 2001, 218P, ISBN 0-419-24420-4.
- Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del “Parc Del Camí Comtal”. 1st Edition. [Online]. Barcelona, 2011. [Accessed: September 2019]. Available at: < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1362.pdf>>.
- Ajuntament de Barcelona. Barcelona Sagrera Alta Velocidad. Pla Director Del “Parc del Camí Comtal”. [Online]. Barcelona, June 2012. [Accessed: September 2019]. Available at < <http://www.barcelonasagrera.com/wp-content/uploads/2015/04/1266.pdf>>.
- Ajuntament de Barcelona. Connected Tramway, Analysis and definition of Barcelona’s tramway connection. [On-Line]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/mobilitat/tramviaconnectat/es>>.
- Ajuntament de Barcelona. Info Barcelona, Urban Planning and Infrastructure. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <https://www.barcelona.cat/info-barcelona/en/tema/urban-planning-and-infrastructures>>.

- Ajuntament de Barcelona. Info Barcelona. [Online]. Barcelona. [Accessed: February 2019]. Available at< <https://www.barcelona.cat/es>>.
- Ajuntament de Barcelona. Les Glòries, Web del proceso de transformación de les Glòries. Movilidad, estructura urbana, verde urbano, usos y actividades. [Online]. Barcelona. [Accessed: February 2019]. Available at: < <http://ajuntament.barcelona.cat/glories/es/>>.
- Ajuntament de Barcelona. Meridiana. [Online]. Barcelona. [Accessed: February 2019]. Available at:< <http://ajuntament.barcelona.cat/meridiana/es>>.
- Ajuntament de Barcelona. Road Safety, Safety and Prevention. [Online]. Barcelona, 2018. [Accessed: October 2019]. Available at <<https://ajuntament.barcelona.cat/seguretatiprevencio/en/roadsafety>>.
- Aldayjover Arquitectura y Paisaje. Nueva Diagonal Verde Barcelona. [Online]. Barcelona, 2011. [Accessed: March 2019]. Available at: < <http://www.aldayjover.com/index.php>>.
- B. G. Glaser, A.L.Strauss. “The Discovery of Grounded Theory: Strategies for qualitative research”. The USA. Aldin Transaction. A division of transaction publishers. 1967,2006, 271 P. ISBN 0-202-30260-1.
- B. Kelly, G.T. Guillet, M.E.W.Heren. Art of the Olmsted Landscape. New York. New York City Landmarks Preservation Commission and The Arts Publisher Inc. 1982, 169P, ISBN 0-941302-00-8.

- Barzilay Marianne, Hayward Catherine, Lombard-Valentino Lucette. “L’invention du Parc: Parc de la Villette”. Paris Concours International 1982-83. Paris: Graphite Editions.1984.
- BOURASSA, S.C (1991), The Aesthetics of Landscape, Belhaven Press, London. CHING, F.D.K. (1979) Architecture: Form, Space and Order, Van Nostrand Reinhold, New York.
- C. H. Voorsanger, J.K. Howat. “Art and the Empire City: New York 1825-1861”. The metropolitan museum of art, New York. Yale University Press, New Haven, and London. 2000, 639 P, ISBN 0-300-08518-4.
- C. Konijnendijk, K. Nilsson, T. Randrup, J. Schipperijn. “Urban Forests and Trees: A Reference Book”. Springer, Berlin. 2005, 520 P, ISBN 978-3-540-25126-2.
- C. R. James. Creating a Better Walking Environments. Science Direct. Sustainable Transport, 2003, P. 282-297. [On-Line]. Available at < <https://doi.org/10.1016/B978-1-85573-614-6.50027-6>>.
- C. Steenbergen, W. Reh. “Metropolitan Landscape Architecture: Urban Parks and Landscapes”. Netherlands: THOTH. Chair of Landscape Architecture. Faculty of Architecture, TU Delft. 2011, 446P, ISBN 978-90-6868-591-6.
- C. Swanwick, N. Dunnett, H.Woolley, “Nature, Role, and Value of green space in towns and cities: An overview”. JSTOR [Online]. Built Environment (1978). 2003, Vol. 29, No. 2, P. 96-106, [Accessed: March 2010]. Available at <<https://www.jstor.org/stable/23288809>>.

- C. Tilley. “A Phenomenology of Landscape: Places, Paths and Monuments”. 1st Edition. USA: Berg Publishers, 1994, ISBN 978-1859730768.
- Central Park New York City. How Central Park Keeps New York City Healthy. In: Central Park Conservancy [Online]. New York. April 2017. [Accessed: April 2017]. Available at <<http://www.centralparknyc.org/about/blog/central-park-keeps-nyc-healthy.html>>.
- Central Park NYC. Central Park Conservancy, Central to the park. History [Online]. New York. 2014 [Accessed: February 2015]. Available at <<http://www.centralparknyc.org/about/history.html>>.
- Central Park NYC. The official account of Central Park Conservancy, Instagram. [Online]. New York. [Accessed: April 2017]. Available at: <<https://www.instagram.com/central-parknyc/>>.
- D. Diba, M. Ansari. Persian Garden, Arg-e Bam. Kerman Architecture and Urban Designing History Congress. Civil Cultural Heritage Organization. 1995.
- D. J. Patrick, “The politics of urban sustainability: Preservation, redevelopment and landscape on the High Line (M.A. Thesis)”. Budapest: Central European University, 2011.
- Dr. M. Van den Bosch. “Health Effects of Urban Parks: Strength of Evidence”. The Swedish University of Agricultural Science. EFUF. 16th European Forum of Urban Forestry. Milano. Italy 2013.

- Dr. D. Stronach. “The Royal Garden of Pasargadae: Evolution and Legacy”. Translated by K. Abdi. In *Archeologia Iranica et Orientalis Miscellanea in Honorem Louis Vanden Berghe* (ed. L. de Meyer, E. Haerinck). Gent. 1989, P. 475-505.
- Dr. D. Stronach. “Ancient Persian Gardens: Evolution and Legacy”. Presentation by Dr. D. Stronach. Berkely University. Asian Art Museum. [Online]. Oct 2014. [Accessed: October 2019]. Available at < https://www.youtube.com/watch?v=43kX_QWHy6M>.
- E. Boult, C. Sullivan. *Illustrated history of landscape design*. New Jersey. John Wiley & Sons Inc. 2010, 267P, ISBN 978-0-470-28933-4 (cloth).
- E. B. Rogers. “Landscape Design: A cultural and architectural history”. Editors: J. Moore, E. Stainton, R. A. Gallin, Designer: A. Rogers, Photo: J. K. Crowley, D. Gongora. H. A. Abrams. New York. 2001, 544P, ISBN 0-8109-4253-4.
- E. Boult, C. Sullivan. *Illustrated history of landscape design*. New Jersey. John Wiley & Sons Inc. 2010, 267P, ISBN 978-0-470-28933-4 (cloth).
- E. Souza. “AD Classics: Parc de la Villette: Bernard Tschumi Architects”. ArchDaily. [Online]. January 2019. [Accessed: November 2019]. Available at < <https://www.archdaily.com/92321/ad-classics-parc-de-la-villette-bernard-tschumi/>> ISSN 0719-8884>.
- E. Stevenson. “Park maker: A life of Fredrick Law Olmsted with a new introduction by the author”. Originally Published: New York: Macmillan. 1977, 528 P, ISBN 0-7658-0614-2.

- F. Kienast, B. Degenhardt, B. Weilenmann, Y. Wäger, M. Buchecker. GISassisted mapping of landscape suitability for nearby recreation. *Landscape and Urban Planning*. 2012, Vol. 105, No.4, P. 385–399.
- F. L. Olmsted, C. Vaux. “Description of a plan for the improvement of the Central Park: Greensward”. New York 1858. Reprinted 1868, 36P.
- F. L. Olmsted. “Forty Years of Landscape Architecture: Central Park”. Edited by T. Kimball. 1st Edition. United States, MIT Press. 1973, 575P, ISBN 0262150093.
- F. L. Olmsted. *Walks and Talks of an American Farmer in England*. New York. [Online]. Gerstein, Toronto. 1852. [Accessed: December 2015]. Available at < <https://archive.org/details/walkstalksofamer00olmsuoft/mode/2up>>.
- F. Magrinyà, F. Marzá. *Cerdà 150 Years of Modernity*. Barcelona. Fundació Agbar. 2009, 318P, ISBN 978-1-945150-35-7.
- F. Waltert, F. Schlapfer. “Landscape amenities and regional development: A review of migration”. *Regional economic and hedonic pricing studies. Ecological Economics*. 2010, Vol. 70, No. 2, P. 141–152.
- Fira Barcelona. “Fira de Barcelona General Archive: AGFB”. Dos Punts Documentació i Cultura SL. [Online]. Barcelona. [Accessed: November 2019]. Available at < https://media.firabcn.es/content/institucional/Guia%20General%20Archive_en.pdf>.

- Fira Barcelona. “Fira de Barcelona General Archive: AGFB”. Dos Punts Documentació i Cultura SL. [Online]. Barcelona. [Accessed: November 2019]. Available at < https://media.firabcn.es/content/institucional/Guia%20General%20Archive_en.pdf>.
- G. Cranz, M. Boland. “Defining the sustainable Park: a fifth model for urban parks”. Landscape Journal. Berkeley. 2004, No. 23. P. 102-120.
- G. Cranz. “Women in urban parks: Woman and the American cities”. Ed: Catherine Stimson. Journal of Women in Culture and Society. Chicago. 1980, No. 5, P. 79-95.
- G. F. Chadwick. The Work of Sir Joseph Paxton, 1803-1865. London. Architectural Press 196. Printed by Willmer Brothers and Haram Limited Birkenhead.
- G. S. Handley, J. Ennos, A. Paulit. “Adapting Cities for Climate Change: The Role of the Green Infrastructure”. Built Environment. 2007, Vol. 33, No. 1, P. 115-133.
- G. Sindreu i Cladera, B. Posas Rodríguez, M. Suy i Saurina. Urbanisme tàctic: el de sempre, però en colors. Diari de Barcelona. [Online]. Barcelona 2020. [Accessed: November 2020]. Available at < <https://www.diaridebarcelona.cat/w/urbanisme-tactic-semple-pero-colors>>
- Geo-environment and Landscape Evolution III: Evolution, Monitoring, Simulation. Management and Remediation of the Geological Environment and Landscape. Edited by U. Mander, C. A. Brebbia, J. F. Martin-Duque. Southampton, Boston. WIT Press, UK, 2008, ISBN 978-1-84564-117-7.

- H. A. Scarr. Geographic Areas Reference Manual. US Department of Commerce. Economic and Statistics Administrations. BUREAU of the CENSUS. 1994, 55P.
- H. Hoyt. Forces of Urban Centralization and Decentralization. American Journal of Sociology. University of Chicago Press. 1941, Vol. 46, No. 6, P. 842-852.
- H. Platt. “The Humane Metropolis: People and Nature in the 21st- Century City”. The USA. Published by Rutherford H. Platt and the Lincoln Institute of Land Policy. 2006, 327P, ISBN 1-55849-553-3.
- Holy Qur'an, Surah Ankabout, Verse 29. Translated by M. M. Elahi Qomshehei. 1961.
- Holy Qur'an, Surah Mohammad, Verse 15. Translated by M. M. Elahi Qomshehei. 1961.
- Holy Qur'an, Surah Shora, Verse 23. Translated by M. M. Elahi Qomshehei. 1961
- İ. A. Sürer. Public Space in the Image of Barcelona in Post-Dictatorship Period. International Journal of Social Science and Humanity. 2016, Vol. 6, No. 6, P. 446-450.
- IOT Times. Cities of the Future. To map the city's retail health, you need to walk the streets. [Online]. Catalunya. March 2020. [Accessed: April 2020]. Available at: <<https://citiesofthefuture.eu/to-map-the-citys-retail-health-you-need-to-walk-the-streets/>>.
- J. A. Acebillo. “Barcelona: Toward a New Urban Planning Approach”. SPATIUM, 1980-2006.

- J. Bunyesc, F. Cifuentes. “Other Glories: Proposal for the re-naturalization of Barcelona”. Edited by C. Talvy, J. Ludwig, G. Thomson. 1st Edition. Barcelona. 2016, 183P, ISBN 978-84-944873-0-9.
- J. Busquetes, P. Ramos. Barcelona Manifold Grids and the Cerdà Plan. Sponsor: BAU-B Arquitectura i Urbanisme SLP. Applied research and design publishing. Harvard Graduate School of Design. 2017, ISBN 978-1-939621-53-5.
- J. D. Hunt, P. Willis. “The Genius of the Place: The English Landscape Garden 1620-1820”. Well-Illustrated, 1st Edition. London. Elek, 1975, 390 P, ISBN-13: 978-0236310333.
- J. D. Hunt. “Greater Perfections: The Practice of Garden Theory”. Philadelphia, University of Pennsylvania Press. 2000, 277P, ISBN 0-8122-3506-1.
- J. Daniel Pugh. “Parc de La Villette, Paris: The Site Description”. September 30, 2004.
- J. McCLUSKEY. Principles of design. Landscape Design. Edited by K. Fieldhouse, London. 1985, P. 153–158.
- J. P. Newell, M. Seymour, T. Yee, J. Renteria, T. Longcore, J. R. Wolch. “Green alley programs: Planning for a sustainable urban infrastructure?”. Cities, ELSEVIER. 2013, Vol. 31, P. 144–155.
- J. R. Resina. Iberian Cities. Routledge, New York, and London. 2011, Vol. 24, 247 P, ISBN 0-8153-3485-0.

- J. R. Wolch, J. Byrne, J. P. Newell. “Urban Green Space, Public Health, and Environmental Justice: The challenge of making cities just green enough”. Landscape and Urban Planning, Elsevier. 2014, Vol. 125, P. 234-244.
- J. Simpson, M. Ellen W. Hern. “Art of the Olmsted landscape: His works in New York City”. USA: New York City Landmarks Preservation Commission & The Arts Publisher Inc. 1981, 38 P, ISBN 0-941302-00-8.
- J. Urbano. “The Cerdà Plan for the Expansion of Barcelona: A Model for Modern City Planning”. Focus. 2016, Vol. 12(1).
- K. A. Sayed, A. Turner, S. Hanna. “Cities as Emergent Models: The Morphological Logic of Manhattan and Barcelona”. Edited by D. Koch, L. Marcus, and J. Steen. Proceedings of the 7th International Space Syntax Symposium. Stockholm, KTH. 2009.
- K. Lynch. “The Pattern of the Metropolis, Daedalus: The Future Metropolis”. [Online]. MIT Press, 1961, Vol. 90, No. 1, P. 79-98. [Accessed: November 2019]. Available at <<http://www.jstor.org/stable/20026641>>.
- L. B. Pascual. Modernisme and the 1888 Universal Exposition of Barcelona. Institut de paisatge urbà i la qualitat de vida. Ajuntament de Barcelona. Historical lab 1 Bruxelles-Brussels. 22 October 2005-12-19.

- L. Baljon. "Designing Parks: An examination of contemporary approaches to design in landscape architecture". The Netherlands. Architecture and Natural Press. 1992, 322P, ISBN 907157010X.
- 79. L. Domènech. "Remodelación Del Paseo De St Joan. Fase 2". Metalocus. [Online]. Barcelona 2015. [Accessed: November 2020]. Available at < <https://www.metalocus.es/es/noticias/remodelacion-del-paseo-de-st-joan-fase-2>>.
- 80. Lola Domènech. Remodelación del paseo de st joan, f2, bcn. [Online]. Barcelona 2016. [Accessed: November 2020]. Available at < <https://www.loladomenech.com/es/proyecto/refurbishment-passeig-de-st-joan-boulevard-phase-2/>>.
- L. M. Farahani, B. Motame, E. Jamei. "Persian Gardens: Meanings, Symbolism and Design". IALE. Official journal of the international association for landscape ecology. Landscape Online. Germany. 2016, No. 46, P. 1-19.
- L. Puppi. Nature and Artifice in the Sixteenth-Century Italian Garden, in The Architecture of Western Gardens. Edited by M. Mosser and G. Teyssot. Massachusetts. The MIT Press. 1991, 544P, ISBN 978-0262132640.
- L. Tajaddini. "Review of the Characteristics of Mahan Garden: One Type of Persian Gardens". World Academy of Science. Engineering and Technology. 2011, No. 56. P. 1581-1584.

- Local Development Framework. Bexley. Open Space Strategy, Amenity Green Space. In: London Borough of Bexley. [Online]. London 2013 [Accessed: October 2015]. Available at < https://www.bexley.gov.uk/sites/default/files/2020-05/LDF-Bexley-Open-Space-Strategy_0.pdf>
- M. Shahidi, M. Bemanian, N. Almasifar, H. Okhovat. "A Study on Cultural and Environmental Basics at Formal Elements of Persian Gardens (before & after Islam)". Asian Culture and History. Canadian Center of Science and Education. 2010, Vol. 2, No. 2, P. 133.
- M. Solà-Morales. Ciutats, cantonades / villes, carrefours. Ciutats i cantonades urbanes. Fòrum Barcelona. 2004, P. 131-134.
- McGraw-Hill. Grounded Theory Methodology. Open University Press. [Online]. The United Kingdom. 2017-2018. [Accessed: March 2019]. Available at < <https://www.mheducation.co.uk/openup-homepage>>.
- N. Demircan, I. Sezen. "Use of Green Spaces for Liveable and Sustainable Cities: Urban Allotment Gardens". Iğdır University. Journal of the Institute of Science and Technology. Cilt. 2018, Vol. 8(1), P. 263-270.
- N. Faghihi, A. Sadeghi. Persian Gardens and Landscapes. John Wiley & Sons Ltd. Wiley Online Library. [Online]. April 2012. [Accessed: September 2019]. Available at < <https://onlinelibrary.wiley.com/doi/abs/10.1002/ad.1403>>.

- N. HajiAliAskar, K. Momeni. “The manifestation of number four in the architectural design of the fire temples of Iran”. *ArmanShahr Architectural and Urbanism Journal*. 2018, No. 21, P. 23-38.
- N .k. Denzin, Y.S.Lincoln. *Hand Book of Qualitative Research*, Second Edition. London, New Delhi. Sage Publications Inc. International, educational and Professional Publisher.
- National Association for Olmsted Parks. Olmsted, His essential theory. [Online]. Washington D.C. Fall 2000. [Accessed: May 2019]. Available at: < <http://www.olmsted.org/index.php>>.
- National Geographic. “Urban Area: An Urban Area is the Region Surrounding a City”. *Geography, Human Geography, Social Studies. U.S. History. World History*. [Online]. 2019. [Accessed: October 2019]. Available at:< <https://www.nationalgeographic.org/encyclopedia/urban-area/>>.
- O. Nel·lo. “The Olympic Games as a tool for urban renewal: the experience of Barcelona’92 Olympic Village”. [Online]. Barcelona: Centre d’Estudis Olímpics UAB. 1997. [Accessed: 2019]. Available at <http://olympicstudies.uab.es/pdf/wp090_eng.pdf>.
- Orlandini, Alain. *Le parc de la Villette de Bernard Tschumi*. Paris: Somogy, 2001.
- P. Grahn, A. S. Ulrika. *Man’s Needs for Urban Parks, Greenery and Recreation*. Institute for Landscape Planning. Alnarp: Swedish Agricultural University, 1985.

- P. Harnik. *The Excellent City Park System*. The trust for public land, Conserving land for people. Reprinted in 2006. Pennsylvania Washington D.C. 2003, 44P. ISBN 0-9672806-5-6.
- P. Lambert, P. Costantini, J. Szarkowski. *Viewing Olmsted*. Photographs by R. Burley, L. Friedlander, G. James. Canadian Center for Architecture, Montreal. Distributed by the MIT Press, Cambridge, Massachusetts and London, England. 1996, 119P, MIT ISBN:0-262-62116-9, CCA ISBN: 0-920785-58-1.
- *Park Classification System, Your City Seattle: Department Policy and Procedure*. Park and Recreation [Online] 2009. [Accessed: November 2014] Available at< http://www.seattle.gov/parks/Publications/policy/parks_classification_policy.pdf>.
- Plataforma Arquitectura. El sitio web de arquitectura más leído en español. Primer Lugar Concurso Plaza de les Glòries. [Online]. Barcelona, 2014. [Accessed: February 2019]. Available at: < <https://www.plataformaarquitectura.cl/cl/02-341167/primer-lugar-concurso-plaza-de-les-glories-barcelona-espana>>.
- PPS. *Project for Public Spaces*. [Online]. New York, 2017. [Accessed: November 2018]. Available at< <https://www.pps.org/>>.
- R. Fishman. “Metropolis Unbound: The New City of the Twentieth Century”. *Flux*, 1990, No. 1, P. 43-55. [Online]. Available at: < <https://doi.org/10.3406/flux.1990.1172>>.

- R. Monheim. The role of pedestrian precincts in adapting city centers to new lifestyles. Science Direct. Sustainable Transport. 2003, P. 326-338. [Online]. Available at < <https://doi.org/10.1016/B978-1-85573-614-6.50030-6>>.
- R. Smithson. "Robert Smithson: The Collected Writings". Edited by J. Flam. Berkeley-Los Angeles-London. University of California Press. 1996, 393P, ISBN 0-520-203852.
- S. Bell, A. Montarzino, P. Travlou. Mapping research priorities for green and public urban space in the UK. Urban Forestry and Urban Greening. UK 2007, Vol. 6, No. 2, P. 103–115.
- S. C. Miller. Central Park, An American Masterpiece. New York: Harry N. Abrams. Library of Congress, Central Park Conservancy, 2003, 255 P. ISBN 0-8109-3946-0.
- T. Crush. Public art in urban parks. Electronic Theses and Dissertations. Department of Fine Arts, University of Louisville, Louisville, Kentucky. 2014, 295P. Available at: <<https://doi.org/10.18297/etd/295>>.
- T. E. Panduro, K.L.Veie. "Classification and valuation of urban green spaces: A hedonic house price valuation". Landscape and Urban Planning, Elsevier. 2013. The University of Copenhagen. September 2013, No. 120, P. 119-128.
- The Garden Guide. Parc de La Villette Paris. Garden Visit. [Online]. England, 2019. [Accessed: October 2019]. Available at< <https://www.gardenvisit.com/>>.
- Tschumi, Bernard. Cinégram folie, le Parc de la Villette / Bernard Tschumi. Princeton, NJ: Princeton Architectural Press. 1987.

- UNDP. United Nations Development Program. "Decentralization: A Sampling of Definitions". [Online]. New York, USA. October 1999 [Accessed: October 2019]. Available at:< http://web.undp.org/evaluation/documents/decentralization_working_report.pdf>.
- UNESCO. World Heritage Convention, The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. Pasargadae, Capital of Cyrus the Great. [Online]. 2004. [Accessed: October 2015]. Available at < <http://whc.unesco.org/uploads/nominations/1106.pdf>>.
- UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. "The Persian Garden: Identification of the property". [Online]. 1993. [Accessed: October 2015]. Available at < <https://whc.unesco.org/uploads/nominations/1372.pdf>>.
- UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. D. Stronach. The form of royal gardens of Pasargadae and its influence on other Persian gardens. [Online]. 1989.P. 55. [Accessed: September 2016]. Available at < <https://whc.unesco.org/uploads/nominations/1372.pdf>>.
- UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. Persepolis. [Online]. 2004. [Accessed: September 2019]. Available at < <https://whc.unesco.org/en/list/114/>>.

- UNESCO. World Heritage Convention. The nomination of Properties for Inclusion in the World Heritage List. Iranian Cultural Heritage Organization of Iran. The Persian Garden. [Online]. 2011. [Accessed: September 2019]. Available at < <https://whc.unesco.org/en/list/1372/>>.
- Urban Parks in Fairfax County. Fairfax County Park authority [Online]. 2013. [Accessed: November 2014] Available at <<http://www.fairfaxcounty.gov/parks/plandev/urban-parks.html>>.
- V. H. Nattaj, E. Rezazadeh. “The Complex of Water, Plant, and Nazargah(Belvedere): Looking for an Archetype of Persian Garden”. Manzar Journal, 2016, No.33, P. 52-57.
- V. Ducatez. El jardín del placer de OMA. Translated by M. M. González. Colaborator S. Bustos, L. Espinoza. Urban Territorial Bitacora. 2005, Vol. 9, No. 1, P. 8-16.
- V. Guallart, C. Bárcena, R. Gratacós. Plans and Projects for Barcelona 2011-2015. Chief Architect’s office. Edited by J. Barnada López, M. Domínguez, M. Montilla, X. Gallego, J. Ninou. Barcelona, Actar Publishers and Ajuntament de Barcelona. 2015, 440P, ISBN 978-1-9402-9172-7.
- V. H. Nattaj, E. Rezazadeh. “The Complex of Water, Plant, and Nazargah(Belvedere): Looking for an Archetype of Persian Garden”. Manzar Journal, 2016, No.33, P. 52-57.

- V. HeydarNattaj, S. A. Mansouri. “A Critical Study on the Chaharbagh Theory in Creation of the Persian Gardens”. Bagh Nazar Journal of Iranian Architecture. 2009. Vol. 6, No. 12, P. 17-30.
- V. McConnells, M. Walls, “The Value of Open Space: Evidence from studies of Nonmarket benefits, Resources for the Future”. Washington DC. 2005.
- W. D. Solecki, J. M. Welch. “Urban Parks: Green Spaces or Green Walls?”. Landscape and Urban Planning, ELSEVIER. 1995, No. 32, P. 93-106.
- WHO, World Health Organization. Regional Office for Europe. “Urban Green Spaces: A brief for action”. [Online]. Copenhagen. 2017. [Accessed: March 2019]. Available at:< <http://www.euro.who.int/>>.
- Z. P. Nael. “The Connected City: How Networks Are Shaping the Modern Metropolis”. Edited by A. Orum. 1st edition. New York. Routledge, 2013, 57P, ISBN: 978-0-415-88141-8

LIST OF PHOTOS

- Photo No. 01: Ancient Stone Carved Relief of the Symbol of Zoroastrianism and Promising the Paradise, The Faravahar in Persepolis Paradise Garden (518 BC), Iran, Photo by Z. Rad on 2009
- Photo No. 02: Incomplete Persian Hand-Woven Carpet Representing a Paradise Garden, Chahar-Bagh, Isfahan, 17th -18th century
- Photo No. 03: Left: Babur Supervising the LayOut of the Garden- Right: Celebrations in Honour of the Birth of Humayun in the Chahar Bagh of Kabul, Mogul miniature, 1508
- Photo No. 04: Aerial View of the Eram Garden and its Connection with the City, A Great Example of the Persian Islamic Paradise, 13th Century, Shiraz, Iran, Photo by A. Malekzadeh, 2019
- Photo No. 05: A Great Perspective Look to the Interior of the Eram Garden, Shiraz, Iran, Photo by B. Ghasemi, IRNA (Islamic Republic News Agency), 2018
- Photo No. 06: The Red Square Shows the Location of Pasargadae Complex in Iran, Photo by Google Earth
- Photo No. 07: Aerial View of the Whole Pasargadae Complex and its Surroundings (3.50 Km*820m) (As big as Central Park, Manhattan), Photo by Google Earth

- Photo No. 08: Quadrilateral Division of the Garden in front of the Palace P in Pasargadae with the Stone Water Channels, Archived on Karnaval.ir, 2018
- Photo No. 09: Pasargadae Palace P and an overview of a part of the Complex, Photo by M. Akbari, 2018
- Photo No. 10: Entrance Gate Palace and Symbol of Faravahar, Photo by Pasargadae Digital Archive, 2018
- Photo No. 11: Left: Tall-I-Takht Viewing Terrace to the whole Complex - Right: Worship and Stone Tower, Photo by Pasargadae Digital Archive, 2018
- Photo No. 12: Aerial View of Palace S or Reception Palace of Pasargadae, The First United Nations Headquarters, Photo by Pasargadae Digital Archive, 2018
- Photo No. 13: Persepolis Panoramic View, Capital of Achaemenid Empire, 559-530 BC, Photo by H. Nik, 2018
- Photo No. 14: Aerial View, Defined Entrance Building and the Central Pavilion in Fin Paradise Garden, Kashan, Iran, Safavid Dynasty, 16th Century (1590), Area: 7.6 ha, Photos by IRNA (Islamic Republic News Agency), 2015
- Photo No. 15: Presence of Water, Plant and Chahar-Bagh division, Main Pool contains 160 small holes a specific mechanism in which water gets out of the 80 holes and drops into the pool by the 80 other holes, Fin Paradise Garden, Kashan, Iran, Photos by IRNA, 2015

- Photo No. 16: Shahzadeh Mahan Garden, Kerman, Iran, Qajar Dynasty (1850), Area: 5.5 ha, Photo by H. Eftekhari, 2018
- Photo No. 17: A look to the Shahzadeh Mahan Paradise Garden, Kerman, Mahan, Iran, Photo by H. Eftekhari, 2018
- Photo No. 18: View of the Main Entrance Gate of Shahzadeh Mahan Paradise Garden from Inside, Photo by R. Mir, 2007
- Photo No. 19: Water Canal from Tigran Qanat of Joupar Altitude to Shahzadeh Mahan Garden - Detail of Qanat Structure - Main Pool of the Garden Irrigation System (Main Reservoir), Photo by Kh. Reza, 2017
- Photo No. 20: Taj Mahal Garden (1632-53), One of the Largest Persian Model Gardens, India, Photo by B. Dalton, 2005
- Photo No. 21: Persian Gardens as a Reference for Garden Design of Belvedere Palace (1714-23), Viena, Austria, Photo by Wien Info, 2015
- Photo No. 22: Birkenhead Park, Aerial View (1847), Photo edited by A.D. Francis, 2015
- Photo No. 23: Grand Entrance to Birkenhead Park, Photo by A. Buildings, 2014
- Photo No. 24: Top- Passeig de Gracia, Palau Marcet, Barcelona 1900, Photo by Barcelona Antigua Online Archive, 2020

- Photo No. 25: The View South from Park Avenue and 94th Street, 1882, Museum of the City of New York Archive, 2020
- Photo No. 26: Aerial View of Central Park and its Surroundings, Photo by U. Jason, 2014
- Photo No. 27: Composition of the Landscape is as Carefully as a Painting in Olmsted's Designs, Central Park, Photo by Kashi, 2011, Central Park Online Archive
- Photo No. 28: Sublime Style Shows Perfectly in this View of Manhattan Skyline beyond Central Park, Photo by A. Fotolia, 2014
- Photo No. 29: Beauty or Pastoral Style, Sheep Meadow, Central Park, 1902
- Photo No. 30: Picturesque Style was True to the Roughness and Drama of Nature, The Ramble, Photo by Central Park Online Archive, 2017
- Photo No. 31: Contrast Between the Hard Gray City and Soft Green Park, Two World Divided, Central Park, Photo by H. Centeno, 2015
- Photo No. 32: Top: View Toward Central Park South During the Construction of the Pond, 1858 - Down: The Same View Toward the Central Park South after Grading of the Site, 1863
- Photo No. 33: Uncovering the Rock to Reveal its Sculptural Quality as a Bear, Central Park

- Photo No. 34: Top: The Western Part of the Central Park - Down: The Same View to the Lake Turned into a Nondescript Meadow
- Photo No. 35: Left: View of the landscape from the Dairy, Central Park, 19th Century Right: The Same View Blocked by a Comfort Station and a Skating Ring, Central Park, Present
- Photo No. 36: Ramble Sequence, Central Park
- Photo No. 37: Pedestrian Path, Central Park, Photo by Randy Lemoine, Flickr, 2016
- Photo No. 38: Bridle Path, Central Park, Central Park Conservancy Archive, 2016
- Photo No. 39: Drive Path, Central Park, Central Park Conservancy Archive, 2016
- Photo No. 40: Transverse Road, Central Park, 1900-2012, New York Public Library & Central Park Conservancy Archive, 2016
- Photo No. 41: Drinking Fountain a Simple Accessory in Olmsted Design for Central Park. 1981
- Photo No. 42: Victorian Children Gather on the Grass Outside the Dairy not long after its Completion. from the Collection of the New York Public Library - Central Park Diary Current Look, Photo by Brian Clark

- Photo No. 43: Wooden Platform Under the Benches that Keeps the Ladies' Feet and Hemlines Clean, 1981
- Photo No. 44: The Thatched Shelter Once Stood on the North End of the Long Meadow, Central Park. It was Lost to a Fire in 1937
- Photo No. 45: Oak Bridge Leading to the Ramble Just after its Construction and 2009
- Photo No. 46: Balcony Bridge, Central Park, January 1859 and 2015
- Photo No. 47: The Same Scene of the Hill and Farmland Which Changed to the Lake Several Years Later
- Photo No. 48: The 79th Street Transverse Road, Under Construction, 1863 and 1981
- Photo No. 49: Gates Opening through the Mall from the Terrace in Central Park
- Photo No. 50: Ice Skating, Central Park, near Historic Dakota Apartment building, 1839
- Photo No. 51: The Desert on the Location of Central Park Changed to a Man-Made Earth Sculpture by Olmsted, Look from Park Avenue Possibly Around 94th or 95th Street to the Northwest, 1885
- Photo No. 52: Three Examples of Trees Available in Central Park Planted with Layering Method, 2018

- Photo No. 53: Willowdale Bridge, near the Mall and Balto. Left to right: Andrew Haswell Green, George Waring Jr., Calvert Vaux, Ignaz Anton Pilat, Jacob Wrey Mould, Frederick Law Olmsted, Photo by Victor Prevost, 1862
- Photo No. 54: An Image of the Southern Part of Plaça de Les Glòries where the Children's Play Area was Concentrated and with a Look to Meridiana as a True Urban Freeway Crossing of Pedestrian Bridges, 1976, Photo by Institut Cartographic de Catalunya. Fons SACE
- Photo No. 55: A look to Meridiana Near La Sagrera and Fabra i Puig, 1950-1975
- Photo No. 56: Current and Future look to Meridiana Near La Sagrera and Navas, 2019
- Photo No. 57: Top View of Plaça de Les Glòries before Deconstruction of Roundabout, 2014
- Photo No. 58: Top View of Plaça de Les Glòries after Deconstruction of Roundabout, 2015
- Photo No. 59: Deconstruction of Roundabout in Plaça de Les Glòries started in February and ended in September 2014
- Photo No. 60: Application of Tactical Urban Planning at the Intersection of Consell de Cent and Rocafort Streets, Photo by Author, 2020
- Photo No. 61: The Concrete Benches Divide the Space Between Cars and Pedestrians, Rocafort Street, Photo by Author, 2020

- Photo No. 62: Passeig de Sant Joan as a Biological Urban Corridor, Barcelona, Photo by Google Map, 2019
- Photo No. 63: Calle de la Marina as a Simple Thoroughfare, Barcelona, Photo by Google Map, 2019
- Photo No. 64: Passeig de Sant Joan, Barcelona, 2019
- Photo No. 65: Carrer de la Marina, Barcelona, 2019
- Photo No. 66: A View to La Villette Park, Photo by A. Sanya
- Photo No. 67: Southern Part of Meadow, La Villette Park, Photo by La Villette Official Website, 2004
- Photo No. 68: Cinema La Géode Imax, La Villette Park, Photo by A. Fainsilber, 1986
- Photo No. 69: Dragon Garden, by François Ghys and B. Tschumi, 1998
- Photo No. 70: Garden of Mirrors, by B. Tschumi, La Villette Park
- Photo No. 71: Bamboo Garden, by A. Chemetoff, La Villette Park
- Photo No. 72: A Look to Some Follies of La Villette Park, Photo by M. Iftekher, 2018

LIST OF DRAWINGS

- Drawing No. 01: Plan of Pasargadae by Author, 2020, based on the sketch done by Dr. David Stonach, Berkely University, 2014
- Drawing No. 02: Pasargadae the Palace Area showing the Chahar-Bagh and the Pool, done by F. Rezayi and D. Stronach, Berkely University, 2014
- Drawing No. 03: Plan of the Fin Paradise Garden, Kashan, Iran, By IRNA (Islamic Republic News Agency), 2015
- Drawing No. 04: Structural Layers of the Fin Paradise Garden, Kashan, Iran, By IRNA, 2015
- Drawing No. 05: Plan and Section of Shahzadeh Mahan Paradise Garden (407*122m), Kerman, Mahan, Iran, By A. Shafei, 2007
- Drawing No. 06: Photo No. 18: Plan, Derby Arboretum, By John Claudius Loudon,1839
- Drawing No. 07: Birkenhead Park Plan (1.30km*780m), By J. Paxton, 1843
- Drawing No. 08: Birkenhead Park Plan, By Birkenhead Park Digital Archive, 2016
- Drawing No. 09: Birkenhead Park Structural Layers, By C. Steenbergen, 2011

- Drawing No. 10: The Evolution of Manhattan Grid from the First Settlement in 1642 to the Recent State of the Island in 2009 With the Integration rate of the Organic Grid to the Uniform Grid, By KTH University, Stockholm, 2009
- Drawing No. 11: The Evolution of Barcelona Grid from the First Settlement 1260 to the Recent State of the Island in 2009 With the Integration Rate of the Organic Grid to the Uniform Grid, By KTH University, Stockholm, 2009
- Drawing No. 12: Green Areas of Manhattan Master Plan,1811, Online New York City Museum, By Author,2020, SC 1:117000
- Drawing No. 13: Green Areas of Barcelona Master Plan,1859, Ajuntament de Barcelona, By Author, 2020, SC 1:117000
- Drawing No. 14: Green Areas in the 1884 Plan of Manhattan, By Author, 2020, SC 1:117000
- Drawing No.15: Green Areas in the 1891 Plan of Barcelona, By Author, 2020, SC 1:117000
- Drawing No. 16: From Miletus (473 BC) to Barcelona (1859) and Portland (1867), the grid has resurfaced in many alternative sizes of square blocks and variations of elongated rectangles (NY 1811)
- Drawing No. 17: Dimensional and Morphological Comparison of the Block of Randel's Plan for Manhattan Island in 1811 and Plan of Cerdà for Barcelona in 1859

- Drawing No. 18: Real Morphology of Randel's Plan Vs Plan of Cerdà, By Stamen Design, 2020
- Drawing No. 19: Nolli Map of Randel's Plan Vs Plan of Cerdà, By Author, 2020
- Drawing No. 20: Cerdà's Original Eixample Master Plan for Barcelona Metropolis (1859), Ajuntament de Barcelona, 2019
- Drawing No. 21: Left: The Blocks Proposed by Cerdà included Peripheral Buildings and Public Green Spaces, Right: Transformation Over Time due to Speculation and Privatization
- Drawing No. 22: Barcelona Universal Exposition (1888), Ajuntament de Barcelona, 2019
- Drawing No. 23: Plan of the Municipality of Barcelona (1891), Serra i Pujalt, Josep Maria, Ajuntament de Barcelona, 2019
- Drawing No. 24: A look to the Site of the Barcelona International Exhibition (1929), Ajuntament de Barcelona Online Archive, 2019
- Drawing No. 25: General Map of Barcelona (1920), Institut Cartogràfic i Geològic de Catalunya, 2017
- Drawing No. 26: Olympic Clusters Defined for Barcelona 1992 Olympic Games, By G. Silvestre, 2020

- Drawing No. 27: Renovation of the Seafront for Olympic Games (1987), By Futurecapetown, 2010
- Drawing No. 28: Definition of the City Center in Diagonal for Olympic Games (1992), By Futurecapetown, 2010
- Drawing No. 29: Development of Barcelona City During 1980-2006, By J. Acebio, 2009
- Drawing No. 30: La Parnasse français, engraving by Maisonneuve, from a painting by Lajoue. Bibliothèque Nationale, Cabinet des Estampes, Paris. This engraving illustrates the use of colonnades, pillars, and statuary to create the illusion of amply space in a small setting.
- Drawing No. 31: Sanitary & Topographical Map of the City and Island of Manhattan, New York, Egbert L. Viele, 1860
- Drawing No. 32: Map of the Study Area, Drawn by Author, 2017
- Drawing No. 33: Vintage Central Park Map, 1860
- Drawing No. 34: Vintage Central Park Map, 1870
- Drawing No. 35: Central Park Map, 1996
- Drawing No. 36: Central Park Sections Illustrating the Park's Geology from 5th to 8th Avenue and Cross-sections of the Park at Sixth and Seventh Avenues, Published as Part

of Egbert Viele's Survey of the Park in First Annual Report on the Improvement of the Central Park, 1857

- Drawing No. 37: Building and density of the urban grid subsequent to the construction of Central Park
- Drawing No. 38: Changes in the Park after 1870
- Drawing No. 39: Victorian Elements, Looking South from the Ramble and the Lake at Bethesda Terrace. Third Annual Report of the Board of Commissioners, Published January 1860.
- Drawing No 40: Currier & Ives Print of the Construction of Central Park, 1859, NY Public Library, Digital Collections
- Drawing No. 41: Vista Down the Mall, Across the Ramble to the Belvedere, Central Park, 19th Century
- Drawing No. 42: The Spa or Mineral Springs Pavilion Served Healthful Water to Central Park Visitors
- Drawing No. 43: Music Pavilion for the North end of the Mall, Designed by Jacob Wrey Mould. Fifth Annual Report of the Board of Commissioners, Published 1862
- Drawing No. 44: Central Park Formal Axis, the Mall, and the Terrace

- Drawing No. 45: Variety of Bridges in Central Park
- Drawing No. 46: Model Boating, Conservatory Water, Central Park, 1907
- Drawing No. 47: Super view Map and Guide of Manhattan, By Samuel Freedman, 1934
- Drawing No. 48: Manhattan Arteries, By Author, 2017
- Drawing No. 49: Annual Visit by Zone and Entrance, Drawn by Central Park Conservancy, New York, 2011
- Drawing No. 50: Transportation Layers of Central Park Classified by their Speeds, By Author, 2019
- Drawing No. 51: High-Speed Layer of Central Park, Drive Path, Re-Drawn by Author, 2017
- Drawing No. 52: Medium-Speed Layer of Central Park, Bridle Path, Re-Drawn by Author, 2017
- Drawing No. 53: Low-Speed Layer of Central Park, Pedestrian Path, Re-Drawn by Author, 2017
- Drawing No. 54: View of Central Park, 1860, Library of Congress Archive
- Drawing No. 55: Central Park Looking South, 1859, Museum of the City of New York
- Drawing No. 56: The Urban Star Model, Kevin Lynch

- Drawing No. 57: The Urban Galaxy Model, Kevin Lynch
- Drawing No. 58: Star Galaxy Model as a Suggested Model for Metropolitan Urban Parks and Greenery Systems, By Author, 2019
- Drawing No. 59: Plaça de Les Glòries Catalanes during the time, By Author, 2019
- Drawing No. 60: Competition Area Plaça de Les Glòries Catalanes, 2011
- Drawing No. 61: Plan of Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014
- Drawing No. 62: Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014
- Drawing No. 63: A look to Canòpia Urbana Designed by Agence Ter and Ana Coello de Llobet, 2014
- Drawing No. 64: Mirador de Les Glòries, Canòpia Urbana, 2014
- Drawing No. 65: Focal Position of Plaça de Les Glòries in the Intersection of Three Important Roadways, By Author, 2019
- Drawing No. 66: Important Facilities Situated in the Plaça de Les Glòries Catalanes, By Author, 2019
- Drawing No. 67: Facilities Provided by Canòpia Urbana, Ajuntament de Barcelona, 2019

- Drawing No. 68: Facilities Provided by Canòpia Urbana for Different Activities and Users, Ajuntament de Barcelona
- Drawing No. 69: Avenida Meridiana and its Connection to the Glòries, By Author, 2019
- Drawing No. 70: Areas of Activity, Meridiana, Ajuntament de Barcelona, 2019
- Drawing No. 71: Gran Via de Les Corts Catalanes and its Connection to the Glòries, By Author, 2019
- Drawing No. 72: Nodes in the Sequence of Metropolitan Squares, Gran Via, By Author, 2019
- Drawing No. 73: Top: Tunnel Castillejos, Gran Via - Down: Tunnel Rambla, Gran Via, Ajuntament de Barcelona, 2019
- Drawing No. 74: Avenida Diagonal and its Connection to the Glòries, By Author, 2019
- Drawing No. 75: Tramway Connection Through Avenida Diagonal between Glòries and Verdaguer, Ajuntament de
- Drawing No. 76: Diagonal Verde and its Connection to the Glòries, By Author, 2019
- Drawing No. 77: New Green Diagonal Concerning Existing and Future Green Corridors, Ajuntament de Barcelona, 2012
- Drawing No. 78: Dimensional Comparison of Central Park by Olmsted and Vaux,

Manhattan (4000*800m) with Parc del Camí Comtal by Aldayjover Arquitectos SLP, Barcelona (4000*25-100m)

- Drawing No. 79: A look to the Future Parc del Camí Comtal or Green Diagonal, Ajuntament de Barcelona, 2012
- Drawing No. 80: Management of Water, Plaça de Les Glòries Catalanes, Ajuntament de Barcelona, 2012
- Drawing No. 81: Depiction of the Future Urban Park in Barcelona Metropolis with Glòries in its Center, Ajuntament de Barcelona
- Drawing No. 82: Predicted Green Spaces designed by J. Randel Jr. in the 1811 Master Plan of Manhattan, By Author, SC 1:117000
- Drawing No. 83: Predicted Green Spaces designed by I. Cerdà S. in the 1860 Master Plan of Barcelona, By Author, SC 1:117000
- Drawing No. 84: Performed Green Spaces in the 2019 Plan of Manhattan, By Author, SC 1:117000
- Drawing No. 85: Performed Green Spaces in the 2019 Plan of Barcelona, By Author, SC 1:117000
- Drawing No. 86: A Look to the Currently Available Green Spaces in the Barcelona Metropolis, By Author, 2019

- Drawing No. 87: Future Green Spaces System Based on the Star-Galaxy Model in the Barcelona Metropolis with the Concept of Barcelona Park as the Newest Generation of Urban Parks in the Built Cities of the 21st Century
- Drawing No. 88: Improving the Climatic Comfort and Biodiversity in the Glòries Core of the Future Barcelona Park, Ajuntament de Barcelona, 2012
- Drawing No. 89: Urban Green Corridor of Passeig de Sant Joan, By Lola Domènech, 2016
- Drawing No. 90: General Plan of the Greenery, Passeig de Sant Joan, By Lola Domènech, 2016
- Drawing No. 91: Plan of Shrub Species, Passeig de Sant Joan, By Lola Domènech, 2016
- Drawing No. 92: The Abattoirs of La Villette in 1867, Paris, France
- Drawing No. 93: Location of the La Villette Park, Paris, France
- Drawing No. 94: Grids of Follies in La Villette Park
- Drawing No. 95: Follies of La Villette Park
- Drawing No. 96: Structural Layout of La Villette Park, B Tschumi, Re-Drawn by Author, 2019
- Drawing No. 97: Water as a New Layer in La Villette Park, By Author, 2019

LIST OF FIGURES

- Figure No. 01: Components of the Urban Area and the Division of the Green and Gray Space, By Author
- Figure No. 02: Purposed Urban Park, By Author
- Figure No. 03: Formation of the Persian Garden in history before and after Islam, By Author

مجلد ہفتم
مولی
مہر کویم عشق ارجح بیان چوین

*WHATSOEVER I SAY IN EXPOSITION AND EXPLANATION OF LOVE, WHEN I COME TO LOVE (ITSELF) I AM
ASHAMED OF THAT (EXPLANATION).*

JALAL AD-DIN MUHAMMAD RUMI (1207-1273)



UNIVERSITAT POLITÈCNICA
DE CATALUNYA
BARCELONATECH

ETSAB



Escola Tècnica Superior
d'Arquitectura de Barcelona



CERCLE D'ARQUITECTURA